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THE GAS JOURNAL

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A Glance at the Contents—

A Radiation plus Convection Gas Heater.

The firm of Messrs. Falk, Stadelmann, & Co., Ltd., have produced a new portable heater, which embodies the features of radiant and convected heat coupled with ventilation and complete combustion. [p. 790.]

Visit to Billingham Plant.

Many representatives of the Mining Association were entertained at Billingham last week. The guests were received on behalf of the Company by Dr. Slade, Captain Cowap, and Mr. Gordon, Director-in-Charge of Coal Research at Billingham. [p. 783.]

Bradford's New Water Gas Plant.

Bradford's new carburetted water gas and auxiliary plant at the Valley Road Gas-Works was formally inspected by members of the Bradford Corporation Gas Committee on Thursday last. After the party had inspected the new plant they visited the Birkshall Works and then returned to the Town Hall for tea. [p. 786.]

The Future of Gas in Bute.

In a paper before the North British Association of Gas Managers, Mr. T. S. Lockhart, of Rothesay, has the following remarks on "complaints:" "What do they mean? Dissatisfied consumers—and like many diseases they are infectious. A few disgruntled consumers can soon turn a whole district into turmoil, and then if the electrician gets busy 'we pay.' To deal with complaints which come through these well-known circuitous channels is one of my pet hobbies, and it is amazing how quickly people appreciate the services rendered." [p. 792.]

Cookery Lectures at Plymouth.

A somewhat novel idea was adopted by the Plymouth and Stonehouse Gas Light and Coke Company in connection with a series of cookery lectures held under their auspices in the Abbey Hall at Plymouth every afternoon and evening of last week. This took the form of free 'bus tickets accompanying the invitations which were sent out to country residents in the Company's area of supply. The ticket entitled the holder to travel into the city and a perforated counterfoil had to be torn off and presented at the lecture in order to secure the return ticket. [p. 782.]

An Old House at Stevenage.

From Mr. W. Phillips (General Manager, Engineer, and Secretary of the Luton Gas Company, and General Manager and Engineer of the Stevenage Gas and Coke Company) we have received an interesting photograph and historical note of an old house at Stevenage occupied by the Resident Manager of the Stevenage Gas and Coke Company. [p. 784.]

Cookery Demonstrations at Newport (Salop).

A gas cookery exhibiton held under the auspices of Newport Urban Council for the purpose of demonstrating to the inhabitants of the town and district the advantages to be obtained from the use of gas and of encouraging them to avail themselves of the Council's system of free installations in their houses was formally opened by Mr. A. E. Evans (Chairman of the Council) in the Council Hall on Monday, Aug. 31. [p. 791.]

A Review of the International Illumination Congress.

A review of this memorable gathering appears on a later page to-day. The value of the Congress, our contributor states, will remain in the lasting effect which it cannot fail to have on the progress of the illuminating engineering movement. It will probably be many years before the Congress visits this country again, but we may at least feel proud that Great Britain has risen to its opportunity and has demonstrated to the lighting experts of all lands that we have little to be ashamed of, and much of which we may well be proud, in our study and practice of the art and science of illumination. [p. 787.]

British Association at Fulham Gas-Works.

Last Saturday some two hundred members of the British Association visited the Gas Light and Coke Company's Fulham gas-works and laboratories. The visitors afterwards were conveyed back to Horseferry Road, Westminster, where they were entertained at luncheon at the Company's Chief Office, the chair being taken by Sir David Milne-Watson, Governor of the Gas Light and Coke Company. The speakers were Sir David Milne-Watson, Sir J. A. Ewing (President of the Engineering Section of the British Association), Sir Richard Threlfall (Chairman of the Fuel Research Board), and Brig.-General Sir Harold B. Hartley (President of the Chemical Section of the Association and a Director of the Gas Light and Coke Company). [p. 785.]

EDITORIAL NOTES

Making History

IT has been often remarked that the memory of the public is short. That will probably apply to the times in which we are living equally as much as to less strenuous days; for it is quite impossible for an ordinary person mentally to store up all the changes that, almost from hour to hour, are taking place. A newspaper (say) two or three weeks old is already "ancient history," and even by the time these notes appear in print in one direction or another the wheel will have had a further turn. Besides all this, so much attention is devoted to what is likely to come next, that there is little opportunity to reflect on what has gone before. But even though details may be forgotten, the broad lessons must be learned so well that they will remain in mind. Thus only can the country hope to avoid in future troubles like those by which it is now assailed.

Not without reason has John Bull enjoyed the reputation of not knowing when he is beaten; now, however, he has been attempting the impossible. Realization of the fact has been forced upon him. It may be described as a new sensation; and in certain quarters there may have been some speculation as to how it would be received. Well, the world now knows. The country is facing its difficulties with a coolness, a level-headedness, which is as legitimate a source of pride to us as it is a source of admiration throughout the world.

True, we are not yet out of the wood. A Supplementary Budget, with its heavy weight of additional taxation, has been presented; and this must remain a source of anxiety. The Act for the suspension of the Gold Standard has been passed; and as yet no one can accurately gauge its effect. We could have wished that it had been accompanied by another Act for the suspension of Party Politics; but they are still with us. The problems are great; the way is a narrow one, and it may be hard. Withal, there is not one of us who doubts that the journey will be successfully accomplished, and that we shall emerge from our troubles with enhanced prestige and (may it be added?) with greater wisdom. In winning through we shall all have with us as our constant companions faith in our country and faith in ourselves.

And Restoring Trade

THE country cannot afford that any effort possible on its behalf should be spared. Each one must "do his bit"—in the manner that may seem to him best, no doubt, so long as he does it. The objective is the restoration of our languishing industries; that accomplished, other desirable results will follow. Such restoration itself depends on various things; one of the main elements being sustained activity. This is no time to "take it lying down." Just when things are at their worst is when a "penny wise" policy is most likely to prove a "pound foolish" one; yet it is naturally the time when such a policy is likely to prove hardest to resist.

Guidance is what we all need, but reliable anticipation never was more difficult. To a great extent we must wait upon events; yet there are certain matters on which one need be in no doubt, and, as has just been said, one of these is the desirability of sustained activity. In industrial affairs sustained activity means sustained publicity; and this is the point we would now make. Too wide attention cannot be drawn to what Sir Francis Goodenough said last week at the Rhyl District Conference of the British Commercial Gas Association—that in these days, when all are asked to economize in every way, there is a danger of too much cutting of expenditure on publicity. It is wiser, as he pointed out, to increase advertising at this juncture than to diminish it. This, too, is the opinion of "The Times" Engineering Supplement, who have lately reiterated their conviction that it is the height of folly to allow established goodwill to depreciate, and sales to be lost, by a curtailment of expenditure on advertising in times of adversity.

Whatever may be the other steps needed to restore to prosperity the country's industries, sustained publicity is assuredly one.

Farthest South

IN spite of what has been said in an earlier article with regard to the short memory of the public, a letter which was among our New Zealand mail last week brought vividly to mind a series of articles that appeared in the "JOURNAL" nearly a quarter of a century ago. The writer of the letter which thus refreshes our memory is Mr. W. B. O'Toole, the Manager of the Invercargill (New Zealand) Corporation Gas-Works—the most Southerly Gas-Works in the world.

It was in 1908 that Mr. Maurice Graham contributed to our pages a series of profusely illustrated articles under the title of "Round the World—and Some Gas-Works." Shortly before that Mr. Graham, on relinquishing control of the engineering establishment that had been associated with his name, mapped out a world-wide twelve months' tour; and it is but natural that his technical and gas engineering experience should have induced him to take interest in, and visit, a large number of gas-works in the many countries through which his travels took him. The articles and pictures describing what he learned, and what he saw, were keenly followed, and proved an attractive feature of many issues of the "JOURNAL." Mr. Graham began with Egypt, and passed from there to India, his journeyings subsequently taking him to New Zealand. It is his account of gas-works in that Colony which has been recalled to mind by Mr. O'Toole's letter, for towards the end of his series of articles Mr. Graham described the Invercargill Gas-Works as having the distinction of being the most southerly gas-works in the world. He furnished us with an excellent photograph, which appeared in the "JOURNAL" dated Sept. 8, 1908, over the inscription, "The Most Southern Gas-Lamp (and Hansom Cab) in the World." At the time of Mr. Graham's visit the works were undergoing complete dismantling and re-erection. The cordiality which has always shown itself in the relationship between us and friends in New Zealand was experienced by Mr. Graham on the occasion of his visit, for he says that he left Invercargill with pleasing recollections of the pleasantness and courtesy of the then Engineer and Manager (Mr. G. Rabbidge) of the "Gas-Works Farthest South."

Clean Coal

SINCE the memorable meeting of the Institution of Gas Engineers last June there has been plenty of time—in spite of national affairs—to study the question of whether it would pay the Gas Industry to carbonize clean coal; and we hope that the general conclusion reached favours the purchase of clean coal. To our mind (and we are by no means alone in this) there exists a ready market for the sale of a solid smokeless fuel, produced at high carbonizing temperatures by the normal gas-works plant, at a price higher than that obtaining for "ordinary" gas-works coke. We feel sure that the public would be glad to pay an extra price once having experienced the advantages of a coke of very low ash content; in these

columns last week, for example, we referred to the testimony of Mr. Ralph Gibson, who is marketing a superior coke which costs approximately 7s. 6d. more to produce than does ordinary gas coke, that " already large numbers of users of this new fuel have expressed appreciation of its good qualities and have continued to use it in place of raw coal." It is significant that the " new fuel " has a low ash content, though not so low as it is possible to attain by the carbonization of " clean coal " as envisaged by Dr. Lessing.

Now it will be remembered that in his paper before the Institution Dr. Lessing set out to demonstrate that a rational improvement of the quality of coke is a practical proposition, and that *it can be obtained not only without any addition to the cost of gas manufacture, but actually at a profit.* And the more we contemplate his arguments, the more convinced do we become that, if his process were taken up by the Gas Industry on a large scale, it would prove of benefit both to the Industry and to its consumers. The sale of a coke of a minimum ash content—that resulting from a coal containing only the inherent ash—would enormously strengthen the position of our Industry. To-day we call attention to the written reply of Dr. Lessing to the discussion on his paper of last June. It is a well-reasoned reply in the author's best courageous style; and our readers are well aware that on the subject of clean coal Dr. Lessing has the courage of his convictions. Certainly the reply ought to satisfy those who contributed to the discussion. The " JOURNAL " has already commented on many of the collateral advantages of carbonizing clean coal, and there are two further points brought out in Dr. Lessing's reply which are well worthy of emphasis: The low chloride content of clean coal means less corrosion of tar stills; and the low sulphur content of clean coal has its beneficial effect on the coke, gas, ammoniacal liquor, and benzole produced by carbonization. Then there is the nature of the ash in coke made from a coal containing only its inherent ash—a matter which should be borne in mind in any discussion of the benefits of carbonizing clean coal. Finally, there is the influence of high-quality coke on the export market; and we agree with the author that a coke such as that obtained in the tests described in his paper is likely to find a ready sale in times of depression in preference to the ordinary product. At a time such as this, there is every reason for concentrating attention on this highly important question of clean coal.

Turning the Tide

DURING the period 1925-29—with the exception of the coal strike year—the Rothesay Gas Undertaking experienced a rapid yearly decrease in gas sales. How this was stemmed is the subject of a story told to the North British Association of Gas Managers, the author being Mr. T. S. Lockhart. In the early part of his paper (in this issue of the " JOURNAL ") the following phrase occurs: " When I came to Rothesay two years ago, I was then, if possible, a trifle more enthusiastic than now." Why this should be, we cannot understand, for as a result of his efforts he has transformed a probable decrease into an actual increase of just over 1 p.ct. for the last financial year, and he records an increase in output of nearly 4 p.ct. for the first quarter of the current financial year. Surely this cannot damp his enthusiasm and his faith in gas. It is proof that, efficiently manufactured, distributed, and marketed, gas is—to quote the familiar slogan—the fuel of the present and the fuel of the future. It is obvious that when the author arrived at Rothesay he was confronted with a task which ought to delight the go-ahead gas manager—the task of setting an untidy house in order, and reaping the benefit of the change. He tackled the situation on the right lines, and we have no doubt that the Rothesay Gas Department are satisfied with what has already been accomplished. Their undertaking is now in a far better position to cope with competition, and there is no need for pessimism regarding the future.

Not unnaturally, the first step taken by Mr. Lockhart to remedy the apparent falling-off in the popularity of gas in Rothesay was to ascertain the causes. These were readily discovered—inadequate pressure in certain sections of the area of supply; service pipes too small; faulty fixing of appliances; reluctance of dissatisfied consumers to tell the Gas Department about their troubles. By a stroke of good luck, just at that time the Roads Department of the Burgh were commencing on a comprehensive scheme of road repairs, and Mr. Lockhart grasped the opportunity of exposing all the main and service pipes in these roads. His inspection proved valuable, as readers of his account will admit; and he quickly found plenty of work to do in remedying irregular pressures due to faulty main connections and service connections. As to the latter, he discovered, for example, that in an amazing number of instances the main had not been bored for the service, but that the service was being supplied through a chisel hole which had merely pierced the main. We need not detail other strange (let us hope !) faults here; suffice it to say that the author succeeded in distributing an adequate supply of gas to houses which formerly had been far from satisfactorily served.

Placed in the position of being able to afford his consumers an ample supply of gas, Mr. Lockhart set to work to sell more of it. Complaints were sought and sympathetically treated, a service greatly appreciated; hire-purchase schemes were introduced; attention was directed to showroom sales, to advertising, to the demonstration of appliances; and every effort was made to impress on all the members of the Department's staff that their co-operation in a common aim was vital to its success. Throughout the " summer " a complete house-to-house survey has been made to collate data relating to the condition of apparatus, meters, and service pipes; and it is proposed to run an additional showroom in the front of the town during the six winter months, principally for the purpose of giving specialized displays and demonstrations. All this, it is suggested, will bear fruit. Mr. Lockhart's paper should appeal to those responsible for the conduct of comparatively small gas undertakings.

More About Service

TURNING to the methods of satisfying consumers of an undertaking one-third the size of that of Rothesay, we find in the paper read at the North Wales District Conference of the British Commercial Gas Association difficulties similar to those which Mr. Lockhart had to face. Inadequate service pipes in Conway were the root of dissatisfaction; " it is," says Mr. H. B. Kendrick, Engineer and Manager to the Conway Gas Department, " impossible to estimate the havoc wrought by this fault." It is a serious slur on the Gas Industry that in modern times instances are to be found such as those quoted by the author—36 houses supplied from a 1-in. diameter pipe; two or three houses coupled to one ¾-in. service. Until all such conditions are remedied, nothing can effect progress in the sales of gas in those areas. Since an adequate supply has been afforded Conway consumers, their attitude towards the Gas Department, and to gas in general as a fuel and a lighting agent, has undergone a complete transformation. The moral is obvious.

Once this change of attitude has taken place, it is necessary to ensure that nothing happens to make consumers revert to lack of faith in gas service; and there appears to us to be only one way to achieve this aim—a maintenance scheme. And we thoroughly agree with Mr. Kendrick that the majority of gas consumers are extraordinarily patient (probably through lack of knowledge of what a good supply of gas means), and put up with a poor supply, leaking taps, and other ailments without complaining, until they can go on no longer. And we are interested in the author's statement: " Our boast that ' Gas never fails ' is likely to be our undoing. If gas apparatus failed completely, as electrical apparatus does, immediate steps would be taken to put the matter right, and the apparatus would be restored to its full efficiency. The blocking of services, leaking of taps, clogging of nipples and burners, are a gradual process and are not generally reported until in an advanced state of development. How much better it would be if these cases were dealt with before the consumer had reached a

point of exasperation. Real service would be rendered to the consumer, confidence would be maintained, and additional business would eventually result." Some form of maintenance ought to be adopted by all undertakings, however small.

Emphasizing the need for the present-day manager of the small works to pay increasing attention to the district, and yet make certain that the gas which is manufactured at the works is of uniform quality, Mr. Kendrick asks that the manufacturers of gas-works plant should keep well to the fore the question of ease of control. He refers to the desirability of all gauges, recorders, and so on, being grouped and easily accessible. In brief, everything should be done to enable the manager (probably the only technical man on the works) to have time to attend to distribution—in its widest sense—as well as manufacture. And, in common with Mr. Lockhart, the author is a firm believer in taking all the employees of the Department into his confidence, and impressing upon everyone that he can do much to foster the sales of gas. He emphasizes in particular what a great deal depends on good fitting work accomplished with courtesy. In regard to sales of appliances, Mr. Kendrick explains that his undertaking is considering giving each man a bonus for every order for apparatus. While he regards showrooms as essential, he believes that canvassing is by far the best way of reaching the consumer, though care is necessary in the choice of a suitable man; and in this connection he refers—as did Mr. Childs in his paper at the meeting of the Wales and Monmouthshire Association reported in our issue last week—to the excellent idea of the employment of a first-rate canvasser on a co-operative basis, each undertaking having his services annually for a period in ratio to the size of the concern.

PERSONAL

The Gas Light and Coke Company have appointed Mr. A. P. Ryan as their Publicity Manager.

Mr. S. Barker Johnson, General Manager and Engineer to the Colombo Gas and Water Company, Ltd., sailed back to Ceylon on the 26th inst., after spending nearly six months' furlough in this country.

OBITUARY

Mr. W. G. Hancock, late Secretary and Manager to the Moorewood Colliery Company, Ltd., and the New Rock Colliery Company, Ltd., and a Director of the Wells Gas Light Company, died after a short illness on Sunday, Sept. 20. In the death of Mr. Hancock, the Board of the Company lose the service of a very able friend.

CORRESPONDENCE

Hydrogenation—Oil and Coal

Sir,—Economic circumstances are conspiring to provide a more alluring prospect than has existed for prosecuting more energetically the endeavour to make a success of hydrogenation. It has become an imperative necessity that our trading account with overseas countries shall balance, which it will fail to do this year despite the bringing in of the receipts from British ocean transport and interest on overseas investments. Pleas are being made to eschew all luxuries of foreign origin, and even to curtail as much as possible the purchase of necessaries from the same source. In the second category comes the bulk of the 9 million tons of oil imports, the taxable portion of which, on the latest levy of 8d. per gallon, is expected to yield in a full year about £30 millions. This taxation is levied on hydrocarbon spirit, much of which might be classed as a "luxury," though what the proportion is no one can compute, even approximately. A goodly portion which would be classified as "necessity" simply takes traffic from the railways, the transport on which is provided for mainly by British coal.

Though tax increment would be lost proportionate to a reduction in imported hydrocarbon oils, on balance of considering the whole of the factors involved, it would seem that *if* hydrogenation of coal, or the tar produced from coal, could be made successful, it would be an immense boon to Britain. You referred to this aspect in the "Journal" as recently as Aug. 19, and I think it can now be regarded as a "front rank" question. Those interested in the process directly from the commercial point of view are evidently of the same view, for during last week and this a series of visits by representatives of the Mining Association, drawn from the various coalfields, have been paid to the Billingham coal hydrogenation works of Imperial Chemical Industries, where they have seen a full-scale experimental plant treating 15 tons of coal per day, and yielding about 10 tons per day of mixed oils. The over-all coal requirement, including the necessary heating, is stated by Imperial Chemical Industries to be 3½ tons per one ton of petrol recovered, and the cost of production is alleged to be 7d. per gallon. This figure, as you remarked on Aug. 19, has been queried as to whether it includes capital, depreciation, &c. It seems reasonable to expect that this information will be available shortly, now that extended efforts are being made to get the coal industry interested. Last week, in Parliament, Mr. Baldwin gave the following written reply to a question: "It has been decided to proceed with research schemes into hydrogenation of tar, oils, and coal. Some modifications in the detailed arrangements have been determined upon, but these, while enabling some saving in capital costs to be made, will in no way alter the essential features of the scheme nor prejudice the value of the results it is hoped to obtain from the experiments."

In a recent review Dr. C. H. Lander (B.C.G.A. Bulletin, September, 1931) says: "There is much irresponsible talk about the necessity for making the country less dependent upon imported motor spirit." In what follows Dr. Lander indicates sympathy with the aim, subject to prosecution of it being free from extravagant claims or reckless assumptions. From all the foregoing I reach the impression that the time is speeding fast when we shall know whether hydrogenation is likely to fulfil the hope which some have centred upon it of lessening our dependence upon overseas for our oil supplies, and at the same time bringing a much-needed increment of business to our coal industry.

"Scrutineer."

Sept. 26, 1931.

A Motorist's View of Gas Lighting.

Sir,—The recent International Illumination Congress with its attendant "side-shows" has done much to make the community "light-conscious." It is to be hoped that Municipal Councils have been following the deliberations of the Congress, for the motoring public are becoming increasingly critical of the lighting of our main roads.

A much greater interest is now taken in the different methods of lighting adopted by local authorities, and it seems to be clear from the many important papers which were read at the Congress that gas lighting for highway illumination is increasing in popularity. My own experience—and I have driven much at night—certainly bears this out. Motoring in South London recently, I was agreeably surprised to notice the great progress which has been made over a wide area in the adoption of a uniform system of lighting. I understand that gas lighting is used almost universally for the roads of South London, and, considering the small sums available from the rates, I think the various Borough Councils have done remarkably well in providing first-rate illumination.

Since these centrally-hung high-pressure gas lamps now light most of the main roads leading out of London, it is difficult to understand why in some small areas councils are going to the trouble and expense of experimenting with other forms of lighting. From the motorists' point of view, a uniform system is preferable. After driving in South London through many miles of streets lit by soft rays, it is very troublesome, for example, to run into the garish lighting now installed on Dulwich Common. I do not wish to disparage electric lighting, but it does seem strange that Councils are not more consistent in the type of illuminant they adopt.

To the outsider it appears to be a great waste of public funds to install new lamps after the decisive tests at Lewisham only a year ago.

Mildred Bruce.

The Woodbines, Esher,
Sept. 22, 1931.

FORTHCOMING ENGAGEMENTS

[Secretaries of Gas and Kindred Organizations are asked to assist in making this diary of events as complete and useful as possible by sending the earliest intimation of all meetings.]

Oct. 1.—INSTITUTION OF GAS ENGINEERS.—Meeting of Publications Committee, 2.15 p.m., 28, Grosvenor Gardens, S.W. 1.

Oct. 2.—INSTITUTION OF CHEMICAL ENGINEERS.—Meeting at Burlington House, Piccadilly, 6 p.m.

Oct. 3.—SCOTTISH JUNIOR GAS ASSOCIATION (EASTERN DISTRICT).—Opening Meeting, Edinburgh.

Oct. 7.—INSTITUTE OF FUEL.—Joint Meeting with all those Institutions interested in the subject at the Institution of Electrical Engineers. Paper by Dr. W. R. Ormandy on "Coal: Smokeless Fuel and Oil from the National Standpoint."

Oct. 8.—MIDLAND JUNIOR GAS ASSOCIATION.—Presidential Address of Mr. W. L. S. Spinks, of Birmingham.

Oct. 9.—MANCHESTER DISTRICT INSTITUTION OF GAS ENGINEERS.—Meeting in Preston.

Oct. 9.—NORTH OF ENGLAND ASSOCIATION.

Oct. 10.—SCOTTISH WESTERN JUNIORS.—Presidential Address of Mr. Alex. M'Donald, B.Sc., of Motherwell.

Oct. 13.—INSTITUTION OF GAS ENGINEERS.—Meeting of Council, 10 a.m.; Gas Education Executive Committee, 4 p.m., 28, Grosvenor Gardens, S.W. 1.

Oct. 14.—EASTERN COUNTIES GAS MANAGERS' ASSOCIATION.—Autumn Meeting at 28, Grosvenor Gardens, S.W. 1, 2.15 p.m.

Oct. 15.—SOCIETY OF BRITISH GAS INDUSTRIES.—Council Meeting in the afternoon.

Oct. 20.—SOUTHERN ASSOCIATION (EASTERN DISTRICT).—Meeting at 28, Grosvenor Gardens, S.W. 1, at 2.30 p.m.

Oct. 21.—INSTITUTE OF FUEL.—Annual Dinner and Dance at the Connaught Rooms.

Oct. 24.—MIDLAND JUNIOR ASSOCIATION.—Visit to Dudley Gas-Works.

Oct. 24.—SCOTTISH WESTERN JUNIORS.—Visit to Dalmarnock Power Station of the Glasgow Corporation Electricity Department.

Oct. 27-28.—INSTITUTION OF GAS ENGINEERS.—Autumnal Research Meeting.

Nov. 5.—MIDLAND ASSOCIATION.—Autumn Meeting in Birmingham.

Nov. 19.—B.C.G.A.—South Wales District Conference at Swansea.

Nov. 19.—SOCIETY OF BRITISH GAS INDUSTRIES.—Autumn General Meeting, Hotel Metropole.

Nov. 25.—SOUTHERN ASSOCIATION OF GAS ENGINEERS AND MANAGERS.—General Meeting, Hotel Metropole, W.C., 2.30 p.m.

THE NEWS OF THE WEEK

Comparative Tests of the suitability of gas and electricity for street lighting are being made by the Camberwell Borough Council. New standards carrying electric lamps of 500 c.p. are being placed along Dulwich Common, and this lighting is to be compared by the Council with the existing gas lamps in use on adjoining roads.

Manchester District Institution.—The General Meeting of the Manchester District Institution of Gas Engineers will be held on Friday, Oct. 9, at Preston. Among the important items on the programme will be the adjourned discussion on the papers on "The Methods of Dilution of Straight Coal Gas;" and a paper by Mr. R. H. Clayton, B.Sc., on "Purification of Gas by Means of Oxide of Iron."

In Order to Meet an Anticipated Loss on the current year's working, the Coventry Corporation Gas Committee have decided to recommend the City Council to increase the charges for gas, after the September reading of the meters, by 1d. per therm to quarterly consumers who take less than 25,000 c.ft. of gas a quarter and to prepayment consumers. There will be corresponding increases, calculated in accordance with the statutory provisions, in the case of the Kenilworth and Bedworth gas aeras.

A **Working Model** of the general immersion hot water heater has been featured on the stand of the Skipton Gas Department at the "Craven Herald" Trades Exhibition during the past week, and it is also worthy of note that due to the special delivery efforts of the Horstmann Gear Company, Ltd., it has also been possible to display at such an early date the self-ignition "Newbridge" gas switch without by-pass which has aroused great public interest both on account of its unique features and simplicity in installation and operation. The switches arrived on the morning of the first day of the exhibition, and were easily fixed by the Department's own fitters in time for the opening ceremony at 2.30 p.m. Two of them were placed in suitable positions on the stand for operation by visitors to the exhibition, and they worked constantly with entire satisfaction throughout.

The Australian Gas Light Company report that the net profits for the past year, including the balance brought forward (£17,066), amount to £315,004, less dividend at the rate of 3½ p.ct. paid in February, 1931 (£143,850), leaving a balance at the credit of profit and loss account of £171,154. The Directors now recommend the payment of a dividend for the past half-year at the rate of 3½ p.ct. on the "A" and "B" shares, which will absorb £143,850, leaving a balance to be carried forward of £27,304.

Increased Sales of Gas during the year of over 4¾ million c.ft. are announced in the annual report of the Directors of the Deal and Walmer Gas Company. In view of the successful working of the vertical retort plant erected in the year 1927 it was decided towards the end of last year to provide for future requirements by adding six retorts to the original installation. Accordingly a contract was entered into with the Woodall-Duckham Vertical Retort and Oven Construction Company (1920), Ltd., for the enlarged plant at a cost of £15,851, which plant has just been completed, and is on the eve of being worked. After paying the dividend on the 6½ p.ct. preference stock, the Directors recommend the payment of a dividend on the ordinary stock for the year of 7¾ p.ct., less the interim dividend paid in March last.

A Profit on the revenue account of £70,861 is indicated in the half-year's statement of accounts of the Alliance and Dublin Consumers' Gas Company, and, after providing for interest on debenture stock, interest on temporary loans, and income-tax, there remains the sum of £61,908, to which must be added the sum of £33,461, being the balance brought from the last account, making a total of £95,369. The Directors recommend the declaration of a dividend on the consolidated Ordinary stock of the Company at the rate of £7 12s. 6d. p.ct. per annum (this being the maximum statutory dividend permissible under the sliding-scale provisions, when gas is sold at the rate obtaining during the half-year concerned), less income-tax, which will absorb the sum of £59,164, after which a balance of £36,204 will remain to be carried to the next account.

THE NEWS—*continued.*

What Our Taxation Means.

Comparison with Other Countries.

In a written reply to Commander Bellairs, the Chancellor of the Exchequer states:

The taxation per head in this country in a full year under the proposals in the Finance Bill will be £16 7s. 1d. The latest available figures for other countries are as follows:

	Per Head	=	£ at Par. £ s. d.
France	1243 francs	..	10 0 2
Germany	143·45 Reichsmarks	..	7 0 5
Italy	414 lire	..	4 9 6
U.S.A.	$28·76	..	5 18 0

In the case of Germany and the U.S..A the figures refer only to Federal taxes, and local taxation is excluded in all cases. For this and other reasons the figures are not strictly comparable.

S.B.G.I. Prize Winners.

In the list of the winners of the prizes given by the Society of British Gas Industries in the City and Guilds of London Institute's recent Examinations—see "JOURNAL" for Sept. 23, p. 724—it was stated that Harry Firth and Harry Ramsden were examined at Halifax. Both these successful students were taught and examined at Huddersfield Technical College.

Big London Lighting Failure.

A large area of North-West London and the outer suburbs was in darkness on the night of Sept. 27 owing to a failure at the central power station of the North Metropolitan Electric Light Company, Willesden.

The affected districts included parts of Northwood, Hendon, Edgware, Golders Green, and Willesden. There was also a failure of lights in West Ham. Houses, shops, and streets were in darkness for varying periods up to one-and-a-half hours in the different districts, and traffic was brought practically to a standstill in Edgware Road, Hendon, where policemen had to direct the stream of traffic with their torches.

Willesden General Hospital and Red Hill Hospital, Hendon, were in darkness for some minutes. Emergency lights were used and little inconvenience was caused. In parts of West Ham the lights went out at 8.30 and did not come on again until 9.55. Practically every house in Canning Town was affected, but the streets were not.

Fortunately the Gas Light and Coke Company came to the rescue in the north-western and outlying suburbs where it still retains the public lighting, and such thoroughfares enjoyed the brilliancy of the public gas lamps while shops and houses were in darkness.

Cookery Lectures at Plymouth.

Free 'Bus Tickets Accompany Invitations.

A somewhat novel idea was adopted by the Plymouth and Stonehouse Gas Light and Coke Company in connection with a series of cookery lectures held under their auspices in the Abbey Hall at Plymouth every afternoon and evening of last week. This took the form of free 'bus tickets accompanying the invitations which were sent out to country residents in the Company's area of supply. The ticket entitled the holder to travel into the city and a perforated counterfoil had to be torn off and presented at the lecture in order to secure the return ticket.

Presiding at the opening of the series on Monday, Mr. J. H. Ellis, Chairman of the Company, said that whatever the state of affairs might be with regard to the price of food they had made arrangements which they hoped and believed would ensure that the cost of cooking would not be increased, but rather diminished. He then spoke of the extension of the Company's mains to a number of places outside the city.

The lecturer and demonstrator was Miss H. H. Tuxford, M.C.A., a Board of Education diploma holder and a gold medallist, who showed how to make various cakes, buns, puddings, &c. On Tuesday afternoon she made cakes, doughnuts, crab cutlets, and scones; and in the evening cooked a household dinner at the cost of one pennyworth of gas, the amount being checked by a meter. This dinner consisted of batter pudding, baked potatoes, roast beef, green vegetables, and cocoanut custard pudding. For her demonstration on Wednesday Miss Tuxford used a heat controlled cooker.

Institution of Gas Engineers.

Examination Results, 1931.

Further successes in Ancillary Subjects having been notified to the Institution of Gas Engineers, the Board of Examiners has made the following additions to the 1931 Examination Results of July 22, 1931, and published in our issue of that date:

EXTERNAL CANDIDATES.

Higher Grade Certificate in Gas Engineering.

Class.	Name.	Town.
Second	Fawkes, S. V.	Stonehouse

INTERNAL CANDIDATES.

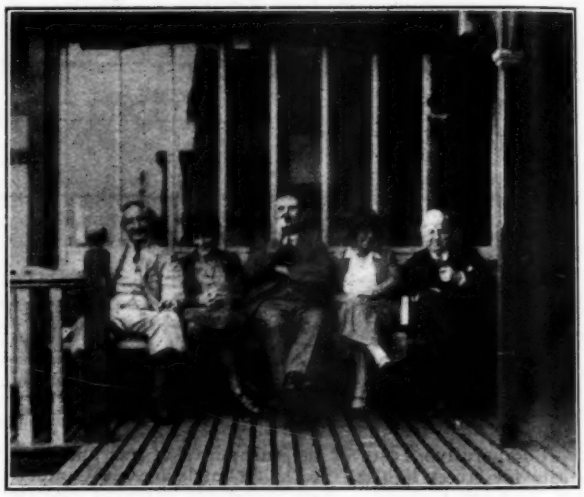
Ordinary Grade Certificates in Gas Engineering.

Class.	Name.	Centre.
First	Allin, N. C. W.	Birmingham
Second	Lewis, C. W.	"

Ordinary Grade Certificates in Gas Supply.

Class.	Name.	Centre.
Second	Crump, R. R.	Birmingham
"	Pilkington, R. H.	"

A Happy Snapshot.



Taken at the Royal Porthcawl Golf Club.

Reading from left to right: Mr. H. D. Madden, of Cardiff; Miss Madden; Mr. J. H. Canning, President of the Institution of Gas Engineers; Mrs. Madden; Mr. W. E. Price, Hon. Secretary of the Institution of Gas Engineers.

Tottenham Company's Carnival Efforts.

The Tottenham and District Gas Company staged two very striking exhibits in the Southgate Jubilee Carnival on Saturday last. The one consisted of a decorated lorry showing a number of modern gas appliances, while the other was a stand in the Broomfield Park on which doughnuts were being continuously fried in a gas fryer.

The lorry which was entered in the Carnival procession, and which was one of the Company's steam coke delivery vehicles, was attractively decorated and carried a number of appropriate gas slogans on the sides and back. Among the gas appliances shown on the lorry were an "Eco" clothes drying cabinet, an enamelled Fletcher, Russell boiler, a washing machine, from which steam was realistically rising, though actually supplied from the engine boiler, a Main's gas cooker, and a Nautilus coke boiler complete with gas poker. The rear of the lorry was devoted to a display and particulars of the advantages of the "Sunhot" gas boiler.

10,000 DOUGHNUTS.

In the Broomfield Park, where much of the Carnival festivities was taking place, the Tottenham Company, under the direction of Mr. S. B. Chandler, the Distribution Superintendent, set up a stand of a very novel character which drew large crowds round it.

The stand, to which a 2½-in. service pipe had been laid, was erected for the purpose of frying doughnuts by gas and

selling them at ½d. each to the public. With the co-operation of the Golden Ray Cake Company, Ltd., who sent a staff of expert doughnut fryers, some 10,000 doughnuts were cooked and sold to enthusiastic crowds who flocked to buy them. A large 3-pan "Teuton" frying range was utilized for the frying, while a 2½ h.p. National gas engine drove the mixer; and gas was also used in the proving oven.

The lighting of the stand was provided by Sugg's lamps, while at each corner and on the top were Flambeaux burners providing open gas flames which were extremely spectacular in effect after dark.

Some doubt was at first expressed as to the feasibility of an exhibit of this nature, but Mr. Chandler was confident of the success of this venture, and the popularity of the stand proved that his experiment was not only justified but amply rewarded, for the doughnuts were bought the moment they were ready, and long queues formed long before the next batches were cooked.

Other firms exhibiting in the Carnival included Messrs. R. & A. Main, Ltd., Messrs. Ewart & Son, and the Southgate Gas Company.

Bristol Company's Record.

A further provincial gas company dealt with in the "Potential Investments" column of the "Financial Times" is the Bristol undertaking.

The Bristol Gas Company, it is stated, was incorporated by the Special Act of 1853 as the Bristol United Gas Light Company, and the present name was adopted in 1891. As from July 1, 1928, the undertaking of the Keynsham Gas Company was acquired, and the area of supply now exceeds 250 square miles, with a population of about half a million, including Bristol, Kingswood, and Keynsham.

That the Undertaking has shared in the continued progress of the Gas Industry is borne out by the following details, which the Directors usefully furnish with their annual report and accounts:

Year.	Gas Made. Million C.Ft.	Number of Consumers.	Number of Cookers Issued.	Mileage of Mains.
1890 . .	1470	20,500	1,587	250
1900 . .	2062	30,033	13,095	322
1910 . .	2778	56,303	43,770	265
1920 . .	3481	72,147	61,618	384
1925 . .	3905	81,550	71,103	420
1930 . .	4312	101,634	90,562	494

The 5 p.ct. maximum dividend on the general capital stock requires £64,375. This rate has been paid for many years, and the amount is now covered nearly twice by the carry-forward. The usual half-yearly distribution of 2½ p.ct. was paid on July 31. Dividends are not subject to a sliding scale.

To Australian Subscribers.

We have been in communication with the London Offices of the Commonwealth of Australia, in order to secure, if possible, that the presentation copies of the "Gas Journal" Calendar and Directory which are sent annually to our Australian subscribers shall be permitted to enter the Commonwealth free of Customs Duty. The matter has now been referred to the Department of Trade and Customs, Canberra, for a ruling; but we have every reason to believe that our application will be successful, and that the 1932 Calendar and Directory will be admitted to Australia free of duty, except for the 10 p.ct. *ad valorem* Primage duty, which now applies to all goods not specially exempted therefrom.

New Waterless Holder at Inverness.

Opening Ceremony.

"A symbol of the progress of the town" was the term in which Provost Alex. M. MacEwen described the new waterless gasholder, which has been erected at a cost of over £14,000 by Inverness Town Council, when, in presence of a large gathering on Sept. 14, Mrs. MacEwen formally turned on the gas into the mains from the holder. The holder, which has a capacity of 500,000 c.ft., is the second of its type to be erected in Scotland, the first being adopted by Edinburgh.

At the ceremony Mr. Barnard G. Hoare, Convener of the Gas Committee, presided. After explaining the need for the erection of the new holder on account of the increased consumption of gas, Mr. Hoare called upon Mr. E. J. King, who represented the firm of Messrs. Robert Dempster & Sons, of Elland, to give an account of the structure. Mr. King gave some interesting facts about the type of gasholder in question, pointing out its advantages.

Mrs. MacEwen then turned on the gas, and the company were afterwards entertained to light refreshments, the chair being occupied by Mr. Hoare. Well deserved tributes were paid to the energy of Mr. A. Thomson, the Gas Manager, who was complimented on all hands on the efficiency of his Department.

Provost MacEwen, proposing the toast of the new gasholder, said it was going to serve a very important purpose. Their gas consumption was continually increasing. Last year the consumption amounted to 161 million c.ft., an increase of 8,896,000 c.ft. over the previous year. During the past twelve or thirteen years the consumption of gas had almost doubled itself. That was a remarkable rate of increase when they considered that during that time the gas undertaking had had to face very strenuous opposition on the part of the electricity undertaking.

"It is very gratifying that, in spite of the heavy capital expenditure which the gas undertaking has had to face, we have been able to reduce the price of gas. As you all know, an undertaking of this kind depends for its success entirely upon the management, and it is because we have been so fortunate in our gas managers that it has been so successful. To those of you who are members of the Town Council it is unnecessary for me to say anything about the qualifications of Mr. Thomson. I venture to say that I do not believe there is any corporation in the whole country which has a more capable and a more enthusiastic Manager than the Gas Undertaking of Inverness." [Applause.]

Bailie J. Arthur Smith proposed the health of the contractors; and Mr. King, after replying, presented Mr. Hoare with a silver salver, suitably inscribed, from the Gas Department in appreciation of his work as Convener.

Another presentation was made when Mr. Thomson handed over a silver salver to Mrs. MacEwen.

Notes from Scotland.

It Was Agreed at a meeting of the Dunbar Town Council to erect a new gasholder of a capacity of 100,000 c.ft., the estimated cost of which will be £5250. An application has been made to the Unemployment Grants Committee for financial assistance.

St. Andrews Town Council, on the recommendation of the Lighting Committee, have agreed that the streets in the new housing area should be lighted by gas. This decision was arrived at after receiving a quotation from the Electric Supply Corporation, Ltd., and a note of the comparative costs of gas lighting.

Oil from Coal.

Visit to Billingham Plant.

Many representatives of the Mining Association were entertained at Billingham last week. The guests were received on behalf of the Company by Dr. Slade, Captain Cowap, and Mr. Gordon, Director-in-Charge of Coal Research at Billingham.

The procedure followed was first for the party to be given a short lecture on the theory and practice of the coal hydrogenation process. It was explained to them how 1 ton of coal upon treatment yields 62 p.ct. by weight of petrol, a second ton of coal being necessary to drive the machinery of the plant and to provide the necessary heating, the overall coal requirement being about 3½ tons of coal per ton of petrol. They were shown a model of a plant designed to produce 200,000 tons per year of petrol, at an estimated cost of between £7,000,000 and £8,000,000. This plant would, it is stated, produce petrol at 7d. a gallon.

They were then shown round the Laboratories, where there are in operation two continuous plants treating about 2 cwt. of coal per day, each determining the best conditions for particular coals; and two other hydrogenation plants in which the oils heavier than petrol, produced in the primary treatment of coal, are hydrogenated to give a further yield of petrol. These small plants are in continuous operation. In addition, the visitors were shown the Chemical Laboratories and various other small experimental apparatus, the distillation columns in which the products are worked up, and a variable compression engine for testing the anti-knock value of the petrol produced.

The visitors were next taken round the ammonia plant at Billingham, where very large quantities of compressed

THE NEWS—*continued.*

hydrogen are made for ammonia manufacture, in order that they could get a good idea of the scale of a large plant for making petrol from coal.

After lunch, the visitors were taken to see the full-scale experimental coal-oil plant in which 15 tons per day of coal is processed to give about 10 tons per day of mixed oils. This plant works continuously and is operating with great smoothness.

After inspecting the hydrogenation plant itself, the visitors were shown the refinery where the products are worked up into first-class quality petrol, and those of them who arrived in their own cars drove away with their tanks full of Billingham petrol.

Continental Utilities.

Under this heading a recent issue of the "Financial Times" drew attention to the Imperial Continental Gas Association in their "Potential Investments" column.

The Imperial Continental Gas Association, it was stated, was established in 1824 and incorporated by special Acts in 1853 and subsequently. Under the Act of 1929, repealing all previous Acts, the Association is authorized to supply directly or in conjunction with other companies light, heat, and power in foreign countries and the British Dominions.

Gas is supplied in certain towns in Holland, Belgium and Czechoslovakia, and electricity in Brussels, and considerable interests are held in other Continental public utility undertakings. In fact, for all practical purposes, the Association is a holding company.

Despite the general economic depression the total consumption of gas and electricity in the areas supplied directly and indirectly continues to increase. Last year's earnings amounted to nearly 25¼ p.ct. on the issued stock.

Compared with the previous year, the item investments, comprising the great bulk of the assets, increased in book value by £846,000, due to further investments of capital in the Cokeries du Brabant and Distrigaz, and a new investment in the Société Chimique de Selzaete, which absorbed about £350,000.

Investments and Reserves.

Home investments increased by £500,000 to £2,106,000. Government securities standing in the books at £1,263,000 were sold at a profit of £196,000, carried to reserves, but the cash was re-invested in other Government securities. Since the close of the last financial year £540,000 has been invested in a new company to take over the Berlin electricity supply from the city, and to finance the transaction part of the gilt-edged investments were sold.

General and specific reserves stood at £5,000,340, but it was made clear at the last annual general meeting that these were not represented fully by easily realizable assets. Rather, they represented additional capital garnered from various sources and invested in various public utility enterprises with which the Association is connected.

During 1930-31 the issued capital was increased from £2,436,594 to £2,800,000 out of a total of £3,000,000 of capital stock authorized. Borrowing powers are not limited, but £1,149,640 of 3½ p.ct. debenture stock has been issued, out of which there is a balance of £212,220 outstanding, excluding £10,611 premium on redemption at 105 p.ct.

An Old House at Stevenage

We are indebted to Mr. W. Phillips (General Manager, Engineer, and Secretary of the Luton Gas Company, and General Manager and Engineer of the Stevenage Gas and Coke Company) for this photograph of the old house at Stevenage occupied by the Resident Manager of the Stevenage Gas and Coke Company. Mr. R. L. Hine, author of the "History of Hitchin," says it would seem from the Parish Records of Stevenage that this ancient building remained in private hands until the 18th century. In 1740 the house belonged to one John Hitchin, a butcher, whose tenant Richard Whittington (a lineal descendant of Dick Whittington, Lord Mayor of London) sublet the property to the Overseers for use as a workhouse in 1759. At some period in the seventeen sixties the house was purchased by the Rev. Nicholas Cholwell, who in 1773 made it over for charitable uses to the Churchwardens of Stevenage. Four years later the house was considerably enlarged and made more adaptable to its purpose as a workhouse. In the Overseers' accounts there are numerous entries relating to the care of the "porpors" who were maintained in the house and agreements with the successive Masters to "keep them clean and decent, and to do well by them and to keep them to Church every Sabbath Day." The house continued to be used as the workhouse up to the year 1835 when the Hitchin Union was formed. Since the year 1855 it has been let by the Cholwell Charity to the Stevenage Gas Company.

THE BRITISH ASSOCIATION - - - AT FULHAM - - -

On Saturday last two hundred members of the British Association visited the gas-works and central laboratories at Fulham of the Gas Light and Coke Company

These Works, the second largest in the Company, were originally constructed in 1829, and are now probably the oldest gas-works in London. None the less they are representative of many of the most up-to-date features of gas-works construction. The Fulham Station has a gas-making capacity of 135,000 therms, or 27 million c.ft. of 500 B.Th.U. gas, a day and occupies a site of 30 acres. To save handling charges, coal, of which the Station now treats 1580 tons a day when in full operation, is brought direct from northern coalfields by certain of the Company's colliers (of 1750 tons capacity), specially designed for this up-river work. Carbonization is carried out in two of the retort houses by the use of horizontal retorts of recent design, and in two others by continuous carbonization in vertical retorts. Partly in order that rapid fluctuations in demand may be met, water gas plant is installed at Fulham in accordance with the Company's usual practice. Fulham is one of the principal stations from which the supply of coke for open fires and domestic hot water boilers is carried out, and the new coke plant at this station was designed by the Company's own staff. It is over 100 ft. high and the storage bunkers have a capacity of 2000 tons. The conveyors carrying the coke through the plant, and the machinery itself, are all electrically interlocked in series so that in the event of the stoppage of any one section, all the preceding plant is immediately and automatically brought to a standstill.

In connection with the domestic coke business an interesting experiment was being carried out as showing the advantages of modern vertical retort coke for the open fire, which attracted the attention of the visitors. Three identical standard coke grates, with gas igniting apparatus complete, were burning respectively horizontal coke carbonized from Durham coals under normal conditions; horizontal coke carbonized under modified conditions; and vertical retort coke. It was interesting to note the particularly free-burning and attractively glowing fire produced by the vertical coke. The time taken to ignite the three cokes properly by gas was 50, 25, and 15 minutes respectively.

The Laboratories.

At each of the manufacturing stations the Company have maintained laboratories for a number of years. The Company's chemical work has, however, been so greatly extended that in 1928 it was found necessary to build new research and works laboratories at Fulham. The new building, although complete in itself, was arranged so as to be capable of extension to twice its present size when required.

It may, however, be useful to indicate here briefly the main lines on which research is carried out. At Fulham, tar, ammoniacal liquor, oxide, and benzole are all studied as indices of carbonizing conditions and as a guide to possible improvements in those conditions. The study of these bye-products from the point of view of the manufacture from them of marketable products is concentrated in a special laboratory at the Products Works. The Company's chemical staff has in recent years also devoted much research to the development of the uses of coke in substitution for smoke-producing fuels. The design of coke-consuming appliances has also been studied.

Fulham is not only the site of the central research laboratories, but a complete experimental carbonizing plant has been installed for experiments on a works scale under exact control. Valuable statistics have been obtained in this way as to the relative advantages of different types of carbonizing plant and the various coals used by the Company. In addition to the experimental high-temperature plant, a Salermo low-temperature plant has also been installed on which experimental work is being carried out.

Luncheon Speeches.

The party travelled by coach from the Fulham works to the Company's head offices, where luncheon was served—Sir David Milne-Watson presiding.

Following the Loyal Toast another—to "Sovereigns and Rulers of Other Nations here"—was honoured.

A toast to the Gas Light and Coke Company, with which was coupled the name of Sir David, was proposed by Sir J. A. Ewing, K.C.B., F.R.S. (President of the Engineering Section of the British Association), and was seconded and supported by Sir Richard Threlfall, G.B.E., F.R.S., and by Brig.-General Sir Harold Hartley, C.B.E., M.C., F.R.S.

Sir Alfred Ewing (who is a member of the Advisory Council for Scientific and Industrial Research, of which Sir David is also a member) described the visit to Fulham as an intellectual and "illuminating" treat, and said it was a revelation to him to see what was being done in connection with the manufacture of gas. He thanked Sir David, Mr. Hardie, Mr. Hollings, and other officers of the Company for their lucid explanations of the work that was being carried out there. The guests, he continued, constituted a mixture, in very unequal proportions, of chemists and engineers, the chemists being, very properly, in the enormous majority; but in the works of the Company there was a very happy combination of engineering and chemistry, achieving wonderful results.

Having read an advance copy of the paper on "The New Gas Industry," presented by Sir David to the Engineering Section on Sept. 29, Sir Alfred Ewing said he had found in it what to him was a real revelation of what the Gas Industry meant to mankind, what it had achieved, what it was achieving, and, to some extent, what it would achieve in the future. Recently he had had to deal with a comparison between two somewhat rival sources of power—the steam engine and the internal combustion motor—and he had had to point out that, notwithstanding all the triumphs of the internal combustion motor, the steam engine was neither dying nor dead and was still doing an enormous part of the work of the world. Very much the same remark might be made of gas in relation to electricity. It had in electricity a bright, interesting, effectively advertising rival; but there was also the continued activity of the gas makers, who were advancing daily towards more and more scientific solutions and better commercial solutions of their problems. He could recall that in the earliest days of applied electricity, about 1880, the Chairmen at the meetings of the various gas companies had made re-assuring remarks to the effect that the shareholders had nothing to fear from the competition of electric light. Nevertheless, the value of gas shares had gone down and down, but the people who were wise and prescient had invested in gas shares then, just as they should invest in British securities now. He recalled particularly that in the early days to which he had referred one very eminent inventor of a fundamental piece of electrical apparatus had put his last shirt on gas shares [laughter] and had made a very considerable fortune by so doing.

Development of Scientific Work at Fulham.

Referring again to the development of scientific laboratory work at Fulham, he described it as wonderful, and said it was delightful and refreshing to see such scientific investigation going on in the interests of a particular industry. Not very long ago Great Britain had been very backward in that respect; the practical man had been rather apt to turn up his nose at scientific research, to trust too much to rule of thumb, or to what was sometimes called trial and error—which involved a good deal of trial and a very great deal of error. Times had changed very greatly in that respect, however, and he referred again to the Advisory Council for Scientific and Industrial Research, which was doing all it could—effectively, he believed—to foster the application of scientific research. He had been asked to write an article on "What Britain Does Best." That was a puzzling title, but he replied that he could write something about "What Britain Now Does Superlatively Well;" it was the encouragement of scientific and industrial research. He could have said that with even greater confidence if he had then seen the laboratories at the Fulham gas-works.

In conclusion, he wished the Company continued prosperity.

Sir Richard Threlfall, who opened officially the Fulham laboratories in 1928, said that he was very interested to see how those laboratories, which he had regarded as the finest he had ever seen, were being used. When he had entered the laboratories that morning, however, he had been rather shocked, because laboratories were places where investigators were expected to work, and yet these were so tidy and so full of brass-bound apparatus and there was such an air of opulence about them. However, he had soon appreciated that highly accurate and standard work of the kind carried out there, requiring the use of very elaborate apparatus, could not be carried out except under conditions of orderly arrangement and cleanliness. He had also been impressed by the directness of the information given to him by a large number of officers there, who looked to him to be just the sort of fellows he would like to have working with him. Simple language such as they had used constituted one of the highest tests of a perfect knowledge of the subject. He congratulated Sir David and the Company upon the obvious

alertness and quality of their assistants, and was prepared to wager that they had first-class laboratories and a first-rate staff running them.

Anticipating the Future.

Brig.-General Sir Harold Hartley, supporting the toast, expressed his pleasure that so many members of the British Association had visited Fulham to inspect works with which he was very proud indeed to be connected. In a tribute to the magnificent work of the officers of the Company, he said that although the Company was nearly 120 years old, it was full of life, was not living on its past, and, as the visitors had seen at the laboratories, it was anticipating the future. That state of affairs, in so old an institution, required a little explanation. There were certain reasons for it. The foremost was Sir David [Applause], who, by his courageous leadership and single-minded devotion to the interests of the Company, had made it what it was. Again, he had a wonderful team in the Company, who worked with enthusiasm, with skill, and with a determination that the Company should be not only the largest of its kind in the world, but also the best of its kind. There was a wonderful unity in this great organization, bound together as it was by the tie of co-partnership; that was not just a phrase, but a vital force which ran through the whole organization. In this Company the lion and the lamb—the engineer and the chemist—really did lie down together.

He was particularly glad that members of the British Association had visited the Fulham works that day, because during the week that had passed the centenary of Faraday's connection with electricity had been celebrated, but the visit to Fulham would remind them that Faraday was a great enthusiast for gas and was one of the earliest pioneers of its use.

Where Gas Comes into its Own.

At the Faraday Centenary Exhibition—one of the most wonderful displays he had ever seen—one could see where gas came into its own. It came into its own in those delicate manipulations required in the manufacture of the filament lamp; there one saw gas in its own province, as a heating agent, a province which would always remain its own, because of its economy, convenience, efficiency, and flexibility, as Faraday had recognized a century ago. Therefore, he exhorted the chemists to be grateful to gas.

Sir David Milne-Watson, responding to the toast, which was honoured with enthusiasm, assured the guests that, though there had been many interesting gatherings in the Horseferry Hall, he very much doubted whether any had been of such interest as this particular one. He was extraordinarily pleased to welcome Sir Alfred Ewing, who had presided over the fortunes of his (Sir David's) first *alma mater*—Edinburgh University—for fifteen years and to whom all students of that University owed a tremendous debt of gratitude for having carried on for so long its best traditions. Sir David also paid a tribute to Sir Richard Threlfall, an outstanding figure in the scientific world, and to Sir Harold Hartley, who was rendering great service to the country in various ways, and pre-eminently in the Gas Light and Coke Company. To the many distinguished scientists from abroad Sir David also offered a particular welcome.

Sir David reminded the guests that gas was made commercially for the first time in the world on the site of the Company's present offices, that from that site gas was first supplied to the public, that gas was first installed in Pall Mall 119 years ago, and that the present-day gas lighting there and in Whitehall was not bettered anywhere in the world. Sir David commented on the Company's appreciation of the value of scientific research as the only means of effecting real advancement. He also pointed out that each one of the Company's fifteen works was fitted with a laboratory for carrying out local work, but that the headquarters laboratories at Fulham were devoted to fundamental research, and he left it to the visitors to judge how important and of what great consequence it was not only to the Company but to the whole of the Gas Industry and to scientific knowledge generally in the world.

Bradford's New Water Gas Plant

Bradford's new carburetted water gas and auxiliary plant at the Valley Road Gas-Works was formally inspected by members of the Bradford Corporation Gas Committee on Thursday last. Alderman George Walker (Chairman of the Committee and Lord Mayor-Elect of the City), who was accompanied by Councillor F. J. Cowie (Deputy-Chairman) and the Gas Engineer (Mr. E. Crowther), received the visitors; and included in the party were the Lord Mayor (Alderman Alfred Pickles); Alderman J. H. Waddington (Chairman); and Mr. W. B. McLusky (Engineer), of Halifax; Mr. A. Bentley (Chairman) and Mr. J. B. Balmforth (Engineer), of Bingley; Mr. A. W. Robson (Chairman) and Mr. H. Burton (Engineer), of Shipley; Mr. E. J. Sutcliffe and Mr. Charles Wood, F.C.S. (former Gas Engineers at Bradford); Mr. F. J. Angell (Messrs. Humphreys & Glasgow, Ltd., of London); and Mr. E. J. King (Messrs. Robert Dempster & Sons, of Elland).

The new plant, with a capacity of 1½ million c.ft. per day of gas at 500 B.Th.U., and a relief holder of 250,000 c.ft. capacity, has cost approximately £18,000.

After the party had inspected the new plant they visited the Birkshall Works and then returned to the Town Hall for tea.

Alderman Walker extended a welcome to the visitors. So far as the Gas Department was concerned, he said, anybody who knew anything about it acknowledged that it was about the soundest undertaking owned by the Bradford Corporation. With regard to the Gas Industry generally, he thought it had a bright future. Some people took a different view, but he found that the consumption of gas throughout the country grew year by year.

The Lord Mayor congratulated the contractors upon the successful completion of their work. The construction of the plant and building had, he said, been well done, and the installation was going to be extremely useful. He wished both Messrs. Humphreys & Glasgow and Messrs. Dempster every success.

Mr. Angell expressed his appreciation of the remarks which had been made concerning the work of the contractors. The plant, he said, was rated as of moderate size, and it did not incorporate self-clinkering nor was it automatically controlled. Within those limitations, however, it was thoroughly up-to-date. In the course of a few years, when Alderman Walker's successor wanted a duplicate plant, his firm would be able to provide something better. The field for carburetted water gas in a place like Bradford was rather limited. They had coal at their door, and it was cheap. Therefore, the carburetted water gas came more as an auxiliary than as a large bulk producer, but, taken as an auxiliary, it would be found to be most useful. It would help the Department in dealing with the coke market when times are bad; and it would certainly be very useful if any very sudden demand for gas arose.

In the southern parts of England, Mr. Angell went on, the scope of carburetted water gas plants was increased and the size of the installations went up. To-day, in fact, carburetted water gas was used very freely, and the plant his firm had installed for one company would, in three weeks' time, turn out more gas than the Bradford Gas-Works produced in a whole year. In the United States of America until a few years ago it was pre-eminently a bulk producer, turning out two-thirds or three-quarters of all the gas used in that country. To-day water amounted to about 10 or 15 p.ct. of the gas manufactured in American retorts, but coal gas made in coke ovens was coming rapidly to the front, and in the States something like ten times as much coke oven gas was used as in Great Britain.

A tremendous amount of work was being done in America in the direction of utilizing gas for central heating in the home, in churches, in large public buildings, in town halls, and in public institutions; and while it applied more particularly to the product of the natural gas companies—whose gas was cheaper—it still applied in very large measure to companies distributing manufactured gas, where the position was similar to that of gas undertakings here. The use of gas for refrigeration, too, was being developed in America and exploited in England. It was interesting to know that in the Southern States and the Middle West of America, where the weather was very hot in summer, gas was coming into use for the cooling of houses. He did not think any user or producer of gas or gas plant need worry about the future.

He asked Alderman Walker to accept from his firm a solid silver rose bowl as a memento of the occasion.

Alderman Walker briefly returned thanks for the gift, and Mr. King then presented to Councillor Cowie an inscribed cigarette case. He commented that during the visit that afternoon he had seen gasholders belonging to the Bradford Corporation which were considerably over 40 years of age; and he suggested that it was up to the Corporation, in the very near future, to pay attention to the fact that it had been laid down in Manchester that the life of a gasholder, generally speaking, should not exceed 40 years. During the past 35 years, he said, his firm had erected in the British Isles more than 200 holders of the type they had supplied in connection with the new plant at Valley Road. When the Bradford Gas Committee considered future extensions, he suggested that they should investigate the merits of the waterless holder.

Councillor Cowie thanked Mr. King for his gift, and remarked that, whenever the question of gas was raised, one always heard the old, old story that it was dying. All he could say was that it took a long time to die. In fact, he did not think it would ever die—because it was a commodity which always rose. [Laughter.]

Alderman Waddington mentioned that in Halifax last year the Gas Department had produced more gas than ever before.

Mr. Robson and Mr. Bentley also briefly spoke.

THE SECOND INTERNATIONAL ILLUMINATION CONGRESS

Recollections of a Memorable Gathering

[CONTRIBUTED.]

It will probably be agreed that every international congress of a technical nature should perform at least three important functions. First of all, it should enable the delegates, the technical experts in the various branches of the subject dealt with by the congress, to listen to papers by other experts, to exchange ideas during the discussion of these papers, and, generally, to widen their knowledge by participation in the meetings. These meetings should, in fact, afford to the expert the same opportunities for increasing his specialized knowledge as do the meetings of any technical society, but with the important difference that the scope of the congress meetings is world-wide instead of being, in the main, national.

The second important function of an international congress is to provide the delegates from all countries with ample opportunities to meet one another informally, to get to know one another, and, in the course of conversation and mutual intercourse, to achieve that wideness of outlook and that " international-mindedness " which are so valuable in smoothing out divergences of opinion and in achieving lasting agreements on technical matters.

The third function of a congress is also educational, but this time it is the non-specialist who derives the benefit. Every international congress should be of immense benefit to the " layman," the " man-in-the-street," of the country in which the congress is being held. It should afford him an opportunity for learning something of the practical applications of the subject dealt with and should give him some measure of the specialists' enthusiasm for that subject.

There is, of course, the effect of the congress on industry, and this is possibly the most important function of all. It is, however, performed indirectly rather than directly and in the same measure as the other objects of the congress are achieved. The education of the specialist, the production of international agreement, and (possibly more than either) the interest created among the public at large have an inevitable effect on the progress and growth of the industry or industries primarily concerned.

Passing, now, from the general to the particular, it may well be asked, " Has the International Illumination Congress just held in this country been a success? " and the answer must be an emphatic " Yes " looking at the matter from any one of the three points of view enumerated above. It may, perhaps, be convenient to take them in reverse order, starting with the evidence that a great deal of public interest has been created in the subject of lighting—more particularly, public lighting.

STIMULATION OF PUBLIC INTEREST.

There can be no doubt that the local committees who have been at work for many months in the various towns selected for meetings of the Congress have been remarkably successful in creating interest in the public mind. This became evident to a quite unlooked-for extent on Sept. 1, the opening day. The Press of the following morning devoted many columns to a recital of the events of that opening night; the dense crowds, their orderly behaviour, their enthusiasm for the beauty of the effects of the floodlighting, all received so much favourable comment that it would be superfluous to say anything further on that theme. The Congress members themselves had ample opportunity to become vividly aware of the unexpectedness of the phenomenon, and the consequent complete inability of the small numbers of police to control the traffic, while they sat patiently in their chars-a-bancs, wedged in the immovable mass of vehicles which thronged Parliament Square and its approaches. The beauty of the flower-beds in St. James's Park, and the striking example of a Class A street-lighting installation in Whitehall—to mention the two outstanding achievements of gas lighting—must have brought home to all thinking members of the vast crowds of that memorable week the almost undreamed-of possibilities of modern illumination in the two realms of artistic beauty and of utility combined with efficiency.

It was, perhaps, inevitable that there should be a certain amount of criticism from individual members of the public on the score that the floodlighting was an extravagance which could be ill-afforded at the present time. Fortunately, this criticism received a complete answer when the President (Mr. Clifford C. Paterson), in his speech at the opening Banquet, stated that the entire cost of the work had been borne by the industrial organizations and not at all by the public funds. The fact that this statement was possible shows that enlightened industrialists were alive to the fact (referred to above) that stimulation of public interest in good lighting must necessarily benefit the industries concerned in the provision of that commodity.

Leaving London for a tour of the provincial cities, the Congress met in Glasgow on Sept. 4 and in Edinburgh on Sept. 7. Here, again, the enthusiasm of the citizens of this historic city for the beauties revealed by the floodlighting of the Castle was amply evident. Princes Street was thronged each night until a late hour, and anyone who was privileged to see the wonderful beauty of the picture which the Castle presented could readily understand why this should be so. The shape of the pile and its position high above all its surroundings made it a unique subject for floodlighting. In London and the other cities, the floodlight on each building had to compete with neighbouring street-lighting and other distracting features. In Edinburgh the Castle stood out as a fairy palace, the only bright object on a completely dark background. It seemed almost to be suspended in mid-air. At the same time, the projectors had been so skilfully arranged that no detail of the structure was lost. Far from appearing flat, the Castle by night seemed to be an even more interesting structure than it appeared by day.

Birmingham, again, produced some wonderful examples of successful floodlighting and street lighting. Although not specially arranged for the Congress, another example of Class A street lighting (Victoria Square, lit by high-pressure gas) created a great deal of interest. Hagley Road was remarkable as an example of an experimental road just over two miles long divided into six sections, lighted alternately by gas and electricity. The standards in the different sections were arranged in different ways and so, quite apart from the comparison between the two illuminants, there was a splendid opportunity for comparing the staggered, central suspension, and double-side systems of arranging lights.

While, naturally, the public lighting and, more especially, the floodlighting of historic buildings seemed to take the most prominent part in interesting the general public in the work of the Congress, there was ample evidence that the civic authorities recognized to the full the importance of the occasion. With the notable—and singularly unfortunate—exception of the City of London, the Congress delegates were officially welcomed by the chief citizen of every city visited. In most cases this welcome took the form of a civic reception; at Sheffield the delegates were entertained at luncheon by the City Corporation and the Sheffield Gas Company.

Yet another evidence of public interest in the visits of the Congress was afforded by the large number of invitations received for members to visit the principal local industrial organizations. At Sheffield and at Birmingham, especially, a number of large firms in these districts received parties of delegates and showed them over their works. This courtesy was much appreciated especially by the delegates from overseas and in some cases more than one party had to be made up for a single works.

The lay Press, not only the great London Dailies, but also the local Press in each city, showed a remarkable interest in the proceedings. Many of the speeches at the social functions were reported at length, and the discussions at the technical sessions were also referred to in some cases. When it is remembered how the enormous pressure on the space of a great newspaper causes everything that has no pronounced " news value " to be rigidly excluded, this

attention at the hands of our great journals can safely be taken as evidence of the interest which the public has shown and, it is to be hoped, will continue to show in all that the lighting engineer is doing to improve the amenities of life for the average citizen.

Cultivation of International Understanding.

Turning now to what may, for convenience, be termed the " social side " of the Congress, we may say at once that the organizers were remarkably successful in their efforts in this direction. In passing it is well worthy of mention that a singularly happy opening to the proceedings was provided by the inaugural lunch given at the joint invitation of the Gas Light and Coke Company and of the London Electricity Supply Undertakings. This demonstration to our overseas visitors of the way in which the study of illumination problems provides a well-recognized meeting ground for the great gas and electrical industries, was an unqualified success and saw the beginning of many an international friendship which was to develop and extend throughout the Congress period. The presence of Mr. Lansbury, the First Commissioner of Works in the late Government, was further evidence of the public recognition which the Congress had achieved.

The luncheon was followed by a tour of the Port of London which enabled our visitors to see much of the activities of London's river and of the great docks. The return journey gave them a splendid opportunity to view the floodlighted buildings on both sides of the river. At 10.30 all the delegates made as much of a tour of the principal thoroughfares in the Westminster area (including St. James's Park) as the dense crowds would permit.

Wednesday, Sept. 2, was given up to visits, chiefly of technical interest, both morning and afternoon. In the evening the official banquet was held in the Dorchester Hotel. Here the delegates were again assembled under a single roof to meet each other and to make the acquaintance of many who, although not members of the Congress, were there to show their active interest in its work and objects.

The Banquet really marked the close of the London programme. On the following day the delegates were conveyed by special train from Euston to Glasgow, making only one stop on the way—viz., at Carlisle. Full use was made of this journey to form new acquaintances and to cement those already made, so that by the time Glasgow was reached a general spirit of friendliness prevailed throughout the whole party. Guided by members of the local committee, the delegates reached their several hotels in good time, so as to be ready for the day of technical sessions forming the morrow's programme.

At ten o'clock on Friday morning, Sept. 4, all the delegates assembled in the examination hall of the Royal Technical College for a welcome by the Lord Provost. They then dispersed to the various rooms in which the sectional meetings were held. Meanwhile the ladies of the party were taken for a tour of the city in the morning, and of Balloch Park and Loch Lomond in the afternoon. Reference has already been made to the civic reception in the City Chambers which was held in the evening and was followed by an inspection of the street lighting of the city.

Saturday and Sunday, the 5th and 6th, were devoted entirely to the " social side " of the Congress. On the former day the whole party went by train to Gourock and then enjoyed a glorious day trip up the Firth of Clyde. The accommodation on the boats was of the best, the catering excellent, and even the weather was favourable to a most enjoyable day in typically Scottish scenery.

The Sunday combined business and pleasure in that, while taking the delegates from Glasgow to Edinburgh, it gave them about six hours in Gleneagles amid some of the most wonderful scenery which these islands have to offer. The time of year and the rapidly changing sky combined to show our visitors this marvellous scene at its very best, and their appreciation, although sometimes vocal, was more frequently felt to be beyond the possibilities of speech.

On arrival at Edinburgh the delegates received a remarkable ovation and found the streets thronged in a way which made them think of the crowds they had left behind them in London.

The whole of Monday, the 7th, was devoted to technical sessions at the University for the delegates, but a motor tour to the Forth Bridge was provided for the ladies in the afternoon. In the evening all the members were received at the College of Art by the Lord Provost, the Magistrates and Council. This reception was followed by a most enjoyable dance in which many members participated and during which they were able to meet local visitors who attended to show their interest in the Congress.

The following morning was free for most Congress members as it was the occasion of the Annual Meeting of the Association of Public Lighting Engineers, the President of which body, Mr. R. Beveridge, is the Lighting Engineer of the City of Edinburgh. A conducted tour was arranged by the local Committee, but many delegates took advantage of the time to wander about the famous city and especially to visit the Castle and Holyrood Palace. They reluctantly said " good-bye " to their hosts soon after mid-day and re-joined the special train for the journey to Buxton.

It had been intended originally that the Congress should hold a day's session in Sheffield, a city which has taken such a great deal of interest in street lighting, especially within the last few years. It proved, however, that it would be impossible to accommodate all the delegates in the city, and it was therefore decided to hold the technical sessions in Buxton and to take the delegates by road to Sheffield for the civic reception and visits of technical interest. Buxton itself was, of course, a charming centre where, between and after the sessions, delegates could meet each other and take walks together for the discussion of matters both technical and non-technical.

The civic reception at Sheffield took the form of a lunch at the Royal Victoria Hotel. Not only the Lord Mayor, but the Master Cutler and many members of the City Corporation were present to welcome members of the Congress. The afternoon was again devoted to visits to famous works in and near Sheffield, and these were followed by tea at the Royal Victoria Hotel and the return journey to Buxton by a different route from that taken in the morning.

On both the Tuesday and Wednesday evenings the railway companies arranged a demonstration of railway station and carriage lighting at Buxton Station.

Thursday, Sept. 10, was devoted to technical sessions, both morning and afternoon, at Buxton, and these were concluded in time for delegates to re-assemble on the special train for the journey to Birmingham. Technical sessions again occupied the delegates during the morning of the 11th, and, in two sections, during the afternoon as well. Those delegates who were free, however, visited either Messrs. Lucas's factory, Messrs. Chance Brothers' works, or the Cadbury Works at Bournville.

In the evening the Lord Mayor received members in the Council House, and this reception was followed by a most enjoyable dance.

Saturday, Sept. 12, was the day to which many delegates had been looking forward with a great deal of pleasurable anticipation, for it was the day to be devoted to a tour of the Shakespeare country. Leaving Birmingham at 10 o'clock by chars-a-bancs, the party travelled out to Henley-in-Arden and on to Stratford-on-Avon. Of course the usual visits to the principal points of interest were made. Unfortunately the weather decided on this day to give our visitors from overseas a notable example of what the English summer *could* provide; nevertheless they managed to get a glimpse of England which, we hope, they will never forget.

Sunday morning brought the close of the first part of the Congress. Those who were taking part in the meetings of the International Commission on Illumination re-joined the special train at Birmingham station shortly after 12 o'clock for the journey to Cambridge, and an account of the proceedings of the Commission in that city will appear elsewhere in this " Journal." This brief outline of the social programme will indicate the completeness of the arrangements made by the local committees, but it cannot give any idea of the wonderful success which attended their efforts to create for the Congress members that atmosphere of friendliness and camaraderie which means so much and which it is so impossible to measure. From first to last the arrangements were carried through with a smoothness which spoke volumes for the months of patient effort which must have been expended by all those responsible for the arrangements at the various centres. Their work had its reward in the marvellous way in which delegates of all nationalities, and speaking many different languages, fraternized and exchanged ideas both at the technical sessions and, indeed, at all times during the Congress period.

Technical Work of the Congress.

The President of the Congress, in his speech at the opening banquet in London, referred to the considerable number of technical papers which had been communicated to the Congress from illuminating engineers, both in this country and abroad. In all, over 100 papers were read at no less than 23 separate half-day sessions. It was, in fact, generally necessary to hold three sessions simultaneously, both morning and afternoon, in each centre. This had its inevitable disadvantages, especially for the smaller delegations. Although the programme was so arranged that, as far as possible, meetings on subjects which were likely to interest the same delegates were held at different times, it was probably unavoidable that in a few instances a delegate would have liked to divide himself into two or more parts in order to be able to join in the discussions of papers

which were being presented at parallel sessions. Generally speaking, however, the three sections held at the same time could be classed broadly as (*a*) the practical applications of lighting (*e.g.*, street lighting, domestic lighting, &c.), (*b*) scientific aspects of illumination and photometry (*e.g.*, heterochromatic photometry, properties of diffusing materials, &c.), and (*c*) problems closely associated with illumination (*e.g.*, physiological problems, daylight, &c.).

Another consequence of the large number of papers presented was the limitation of time imposed on the speakers. Authors of papers, and those who presented papers on behalf of absent authors, were limited to 15 minutes in which to present short summaries of their communications. The number of papers taken at each session was usually four or five. Sometimes each paper was discussed separately, but more often two papers which were closely related in subject-matter were read by their respective authors and a discussion then took place on both.

It might well be thought that a technical meeting at which the discussion was shared among representatives of twenty different nations might be somewhat ineffective on account of the language difficulty. This, however, was far from being the case. The languages used at the meetings were confined to English, French, and German, and every delegate was fluent in at least one of these. Even with three languages, however, progress would have been very slow indeed if every speech made had had to be translated twice. It was therefore a fortunate circumstance that a large number of the delegates were excellent linguists. Many of those from overseas, in fact, could and did express themselves with considerable facility in English. Others who preferred to speak in either French of German were nevertheless quite able to understand what was said in English, and the amount of translation needed was therefore much reduced.

A further fortunate circumstance was the presence of certain delegates who were outstandingly fluent in all three languages. In particular the leader of the Dutch delegation, Dr. N. A. Halbertsma, seemed to be equally at home whether he was speaking in English, French, German, or Dutch. This gift, combined with his remarkable technical knowledge, made him much sought-after; and he was undoubtedly the busiest of all the delegates attending the Congress. Added to his linguistic skill and his technical ability he possessed also the somewhat rare knack of handling a large meeting, and the manner in which he conducted the meetings on Street Lighting at Edinburgh won the admiration of all who attended them.

The papers most directly interesting to gas engineers were those taken during the two sessions over which Dr. Halbertsma presided, but these papers have been referred to in full in the "JOURNAL," and it is not necessary, therefore to devote further space to them here. Many of the other subjects dealt with, however, were of interest to all concerned in the provision of good illumination; and, therefore, although they did not touch specifically on gas lighting, they were quite as important to the gas industry as to the electrical industry.

Among the more severely practical subjects, industrial lighting and architectural lighting should be mentioned. Four papers dealing with the subject of factory lighting were presented, two from Germany, one from the United States of America, and one from Great Britain.

The first of the German papers described the new code of lighting recently promulgated in that country by the efforts of the German Illuminating Engineering Society; the other paper was of a more general character. The American contribution, with the somewhat unconventional and expressive title of "Humanitarian Footcandles," had as its theme the conception of lighting as a part of the amenities of life and the raising of the standard of lighting as a part of the general improvement in the standard of living. The English paper was contributed by the Society of British Gas Industries and dealt very exhaustively with the lighting of factories and large buildings.

There were two sessions on architectural lighting. One paper by a German author (Dr. Norden) dealt with the subject of shadows and shadow production in illuminating engineering. The two English papers dealt respectively with the engineering aspects of the subject, and with the more strictly architectural aspects. The authors of this latter paper were both architects by profession and their contribution therefore excited considerable interest among the delegates more particularly concerned with this modern development of the lighting art. Dr. Kalff, of Holland, gave a paper on the relation between lighting and architecture, and, finally, there were three papers from France, which has generally been regarded as the birthplace of architectural lighting. One of these three papers, by MM. Maisonneuve and Wetzel, gave a most interesting account of the progress of artistic lighting in France during the past three years.

One of the sessions held at Buxton was devoted to papers on railway lighting (including a communication from the Comité de Direction des Grands Reseaux de Chemins de Fer Français), and on the lighting of mines. The subject of daylight was dealt with in no fewer than ten papers taken during two of the sessions held at Glasgow. The chair at these sessions was occupied by Prof. Magnus McLean, who was associated with Lord Kelvin in some of his work.

The precision of photometric measurement produced an unexpectedly large number of papers—viz., nine—from six different countries. It was very clearly brought out in the discussions that the subject of photometry, and more especially "field" photometry with portable instruments, had been very widely studied as regards the accuracy generally attainable. This was probably a sign of the increasing attention now being paid to photometric measurement in all branches of illuminating engineering.

Diffusing materials, and especially diffusing glassware, were dealt with in ten papers. The extensive use of such materials in modern lighting equipment was probably responsible for this relatively large number of communications. Several of them were extremely specialized in character, and described researches into the microscopic structure of the materials. The discussion on these papers was therefore naturally restricted to a few specialists; nevertheless it was clear that a good purpose had been served by bringing these specialists together for a mutual comparison of methods and of points of view.

The same might be said of the session dealing with the physiological aspects of lighting. The relation of visual acuity to the degree of light adaptation of the eye, the measurement of the extent to which vision is impaired by the presence of a bright source in the field of view, the fundamental bases of visual sensations—all these are matters which have to be investigated and, further, to be investigated with skill and accuracy if the subject of lighting is to make progress along sound lines.

It is only possible to mention that other sessions were held on the subjects of heterochromatic photometry, coloured glasses for signals, the classification of light distribution curves appropriate to different fittings, the use of light traffic signals, farm and horticultural lighting, home lighting, &c. For a full account of these meetings and the papers read, the reader must be referred to the volume of "Proceedings" which is to be issued at a later date. All that can be said here is that, generally speaking, the papers presented were of a high standard and the discussions which took place were correspondingly valuable.

It is impossible to close this brief account of the proceedings of the Congress without paying a tribute to those responsible for its organization. The work of the local committees at the various centres has already been referred to. The social side of the Congress was the care of a very active Programme and Entertainments Committee under the chairmanship of Mr. C. W. Sully, while the comfort and enjoyment of the lady visitors were most effectively cared for by a Ladies Committee presided over by Mrs. C. C. Paterson. The Membership Committee under Mr. J. Terrace, and the Publicity Committee under Sir Francis Goodenough (with Mr. W. J. Jones as Vice-Chairman) were extremely active, and the results of their work must have been very gratifying to them. The same may be said of the Committee on Technical Papers and Publications presided over by Dr. Walsh, while the Executive under Col. Edgecumbe and the Finance Committee under Mr. Ll. B. Atkinson (with Sir Francis Goodenough as Hon. Treasurer) were necessarily responsible for providing the framework on which the whole structure was erected.

When all has been said, however, there remains one name which, in addition to that of the President, stands out most prominently, and will ever be associated with the Illumination Congress of 1931 by all those who participated in it. The Hon. General Secretary, Col. C. H. S. Evans, was the man to whom everybody turned in every need and was never disappointed. His indefatigable energy, and his wonderful powers of organization and of maintaining efficiency with unfailing courtesy, won the admiration of all the delegates, and this found expression at Cambridge on the Monday following the Congress tour, when he was presented with a gold watch as a small token of gratitude for all that he had done to make the Congress the great success it undoubtedly was.

And so the Congress of 1931 has come and gone. Its value, however, will remain in the lasting effect which it cannot fail to have on the progress of the illuminating engineering movement. It will probably be many years before the Congress visits this country again, but we may at least feel proud that Great Britain has risen to its opportunity and has demonstrated to the lighting experts of all lands that we have little to be ashamed of, and much of which we may well be proud, in our study and practice of the art and science of illumination.

NOTES ON PLANT AND PROCESSES

The "Ravec" Portable Gas Heater.

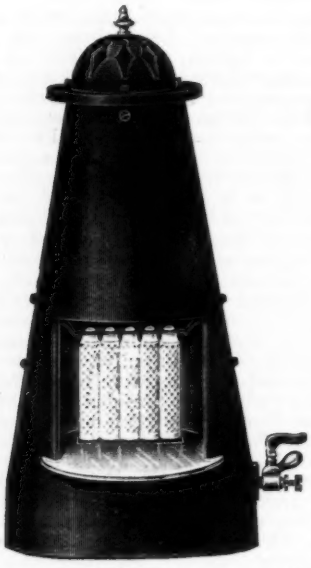
Radiation *plus* Convection.

The subject of radiation combined with convection heating has been receiving considerable attention in the Gas Industry recently. As has been pointed out before, the Industry has gained approval from the general public and the medical and nursing professions alike, because it has been proved beyond question that healthy radiant heat can be provided economically; and in this direction great credit is due to the research abilities and the commercial enterprise of the manufacturers of gas heating appliances.

At the same time, the field of convection heating must not be neglected—for it is a field which can be properly covered by our Industry. At the last autumnal research meeting of the Institution of Gas Engineers several references were made to the virtues of convective heat, and it would appear that in the immediate future our Industry will seriously consider how and to what extent they can translate the thermal energy of gas into convection. It is not, however, a question of radiation *versus* convection; and thus it is considered by many that the ideal lies in a combination of the two.

Translated Into Practice.

The firm of Messrs. Falk, Stadelmann, & Co., Ltd., claim to have translated this ideal into practice in their new "Ravec" portable heater, which embodies the features of radiant and convected heat coupled with ventilation and complete combustion.



Messrs. Falk, Stadelmann's New "Ravec" Portable Gas Heater.

As will be seen from the accompanying illustration, the "Ravec" is of neat and compact design, standing 2 ft. high, with a width at the base of about 1 ft. The heater has been produced after exhaustive research, and the new method of construction has resulted in improved burner combustion and the setting in motion of a current of convected heat. The body is cone shaped, and has an internal casing, which creates an upward draught of air. The air thus drawn in from the room becomes warmed, passes out at the top of the heater, and mixes with the fresh air entering the room. There is therefore a constant and steady movement of air, which prevents the atmosphere from becoming dry and stuffy. At the same time heat is radiated from the fireclay radiants in the front of the heater.

The consumption of gas by the "Ravec" heater is stated to be small, and owing to the uniform balance of air to the burner, complete combustion is obtained, so that the atmosphere remains pure—a very important point in the case of a portable apparatus of this type. In the past there is no denying that we have held and suffered from very confused notions of gaseous combustion and adequate ventilation, and the bogey of carbon monoxide has dogged our footsteps and retarded development. The whole problem of convection heating is a delicate one which requires cautious handling, so that the introduction of this and similar types of gas heater is gratifying inasmuch as it enables it to be recognized that, thanks to research in this direction, the air of confusion is being transformed into an atmosphere of clarity.

Solid Construction.

The "Ravec" is constructed from heavy sheet steel, with removable dome top and rim in cast iron; the reflectors and fender are in polished copper, while the apparatus is complete with gas and air adjusters, flexible tube nozzle, and gas tap. Altogether it is an attractive appliance that should meet the demand for an efficient and economical portable heater at a reasonable first cost.

"Foochow" Decorators' Materials.

In the current issue of the "Journal of Decorative Art" Messrs. Donald Macpherson & Co., Ltd., feature their "Foochow" Decorators' Materials. They give an illustration of the magnificent Tootall, Broadhurst, Lee Building at Manchester, designed for seventeen storeys. The exacting requirements and vast area covered lend graphic significance to the exclusive choice of "Foochow" for all interior and exterior painting.

"Foochow" has great elasticity, which enables it to withstand vibration and wide variations in temperature. Its hard and brilliant surface is practically indestructible, and impervious to the severest climatic and atmospheric conditions. Its covering power and ease of working make it economical to use. "Foochow" paints are the result of a lifetime's study and research.

British Glassware.

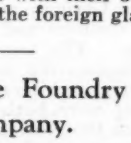
To demonstrate that there is no need to go abroad for good glassware, Messrs. Hailwood & Ackroyd, Ltd., selected a well-known illuminating shade of foreign manufacture and sent this, together with two samples of glassware moulded, blown, and finished from beginning to end by the firm at their Morley works, to the National Physical Laboratory.

The following table summarizes the findings of the National Physical Laboratory.

SUMMARY OF TESTS
CARRIED OUT BY
THE NATIONAL PHYSICAL LABORATORY.
TEDDINGTON, LONDON
COMPARISON BETWEEN BRITISH & FOREIGN ILLUMINATING GLASSWARE

PARTICULARS		MAXIMUM CANDLE POWER AT GIVEN POINTS		
MAKER	TYPE OF GLASS	LEFT SIDE 50°	BOTTOM (CENTRE) ZERO°	RIGHT SIDE 50°
HAILWOOD & ACKROYD Ltd	SOLID OPAL	95	120	95
HAILWOOD & ACKROYD Ltd	3-PLY. OPAL	97	135	103
FOREIGN	SOLID OPAL	95	124	98

HAILWOOD & ACKROYD Ltd
GLASS & FITTINGS MAKERS.
MORLEY, LEEDS.



It will be seen from the above table that, with the solid opal glass, Messrs. Hailwood & Ackroyd, Ltd., are only 3 p.ct. below the foreign glass, while with their 3-ply glass their results are 10 p.ct. superior to the foreign glass.

Products of the Whessoe Foundry and Engineering Company.

Eleven years ago the Whessoe Foundry and Engineering Company, Ltd., of Darlington, entered a period of expansion, and during more recent years further large extensions have been completed, and the present works are now expressly equipped to fulfil under modern conditions a vastly increased output of plant and machinery worthy of the traditions of the Company. It is on the completion and consolidation of these extensions that a most comprehensive and attractively produced booklet has been issued by the

firm in order to summarize the present activities of the Whessoe Company.

Among a number of excellent photographs indicating the range of the plant manufactured are some views of the Company's Darlington Works, which occupy an area of over 14 acres, and are situated in a particularly favourable position to obtain the supply of raw materials and for the delivery of their finished products.

The first section of the booklet, by means of photographs and short descriptions, summarizes the gas-works plant produced by the firm. Various sizes of gasholders, both column and spiral guided, are illustrated, together with horizontal water tube condensers, washing installation, scrubbers, ammonia and naphthalene extractors, &c.

The Whessoe Company are prepared and competent to put forward schemes for any type of purifier work—new boxes, complete houses, conversions, or extensions—and views of purifier installations serve to show the comprehensive work undertaken by the firm. A speciality is made of complete purifier installations, everything necessary for the dry purification of gas and for dealing with the oxide being provided.

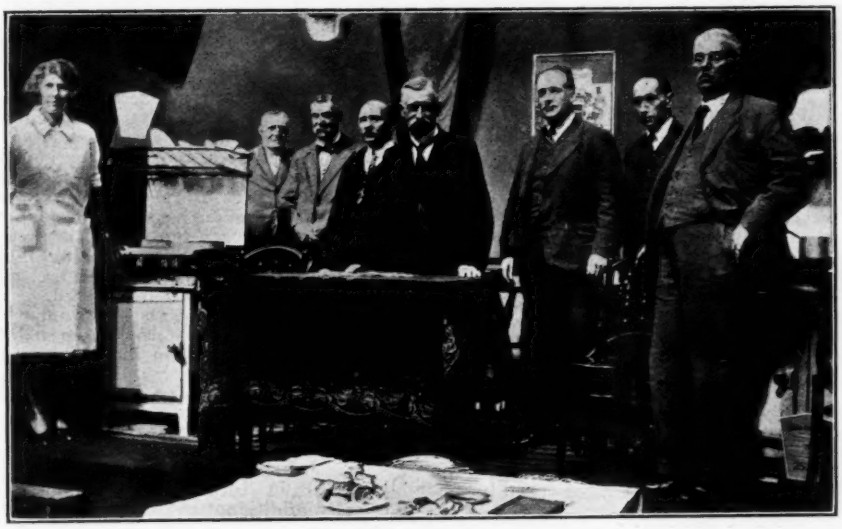
The subsequent sections of this most interesting booklet indicate the firm's capabilities as designers, manufacturers, and erectors of steel tanks and of work allied to tank construction, including the Wiggins patent floating roofs for oil and spirit tanks, which, when fitted to tanks containing spirits or volatile oils, effect large savings in evaporation and eliminate risks of fire. Further sections are devoted to oil refinery units, blast furnaces and blast furnace plant, steel plate work, and chemical plant and cast iron work.

Weighbridges of various types are described and illustrated, while the final section deals with the important subject of handling and grading plant and the dry cleaning of coal. To make their services complete the Whessoe Company's activities now include the design, supply, and erection of all types of handling and screening plant; and illustrated in this section are examples of various patterns of conveyors and elevators. A description is given of the Kirkup pneumatic dry coal-cleaning plant.

Whessoe products are backed by the Whessoe organization, expressly equipped to give satisfactory and prompt service, and by the experience gained by 140 years of engineering work.

Gas Exhibition and Cookery Demonstrations at Newport (Salop)

[From the "Newport and Market Drayton Advertiser"]



The gas cookery exhibition held under the auspices of Newport (Salop) Council for the purpose of demonstrating to the inhabitants of the town and district the advantages to be obtained from the use of gas and of encouraging them to avail themselves of the Council's system of free installations in their houses was formally opened by Mr. A. E. Evans (Chairman of the Council) in the Council Hall on Monday, Aug. 31.

The interior of the hall presented an attractive appearance, having been decorated with flags, streamers, &c., while handsome stoves and other exhibits were placed on the platform and along the sides of the room.

The Chairman said it was a great pleasure to him to welcome those present to the exhibition, the object of which was to bring to the notice of the consumers the various functions which gas would fulfil. They were bound to make the gas up to a certain standard, and, when they had finished paying off the capital account they had had to borrow, they would then have to reduce the price of the gas to the consumers. Within a very short time the price of gas in Newport should be reduced to a shilling a therm, which would be equivalent to 4d. a unit for electricity. He appealed to those who had electricity in their houses not to do away with their gas appliances, because he was convinced that when gas became cheaper they would go back to it.

The Secretary of the Gas Department (Mr. E. G. Jones) said that for the exhibition and the splendid range of gas appliances they were indebted to Messrs. John Wright & Co., of Radiation, Ltd. The up-to-date display of lighting effects had been supplied by The Lighting Trades, Ltd. The "Newbridge" gas switches, which operated the centre lights, had been fixed by The Horstmann Gear Company. It was right that they, the owners of the gas undertaking, should have all the latest patterns of appliances brought to their notice, and he was sure they would support him in a vote of thanks to the co-operating firms. The success of the gas undertaking in Newport was already assured. The statement of accounts covering the period July 28, 1930, the date the undertaking changed hands, to March 31 last was so satisfactory as to warrant their representatives passing on a benefit to them in the shape of a reduction according to consumption. The Council had acted on two great principles, "broadmindedness" and "farsightedness," and already nearly 100 free slot installations had been put into houses, and they welcomed applications for more. On their behalf he welcomed to the town Miss Baker, of Radiation, Ltd., and Mr. Riley, of Messrs. John Wright & Co., and he knew they would all benefit by their visit.

The Chairman then proceeded to introduce Miss Baker, who gave a number of interesting cookery demonstrations, cakes which she had baked being subsequently sold. Mr. Riley explained the advantages of the various appliances.

THE "JOURNAL" TECHNICAL RECORD

Which contains Full Reports of Meetings of Gas and Allied Associations

Regaining Output and the Future of Gas in Bute

By T. S. LOCKHART, of Rothesay.

[Paper read before the North British Association of Gas Managers, Sept. 10]

Some time ago I was considerably impressed and not a little envious to hear of an economics lecturer who could hold a class of students enthralled while he juggled with economic technicalities and statistics. Our friend was evidently fortunate in having a subject which he knew and loved and in having a certain freedom and fineness of diction which radiated to his listeners and fired them with a love of the subject too.

I wonder, have we of the Gas Industry the means whereby a similar appeal may be made to our listeners. Unfortunately, the subject of "gas," like that of "economics," has not the æsthetic attraction of that of "electricity," as witness the late Minister of Transport's recent boosting which Sir David Milne-Watson had occasion to comment on. There is no doubt that, unless one is a student of the subject or unless the appeal is substantiated by something more tangible than mere words, quite rightly one is left cold and uninspired.

May I quote a few facts from my own experience which do not contribute in the least to the alleviation of such lukewarmness, but tend rather to its accentuation and make those whom we serve more apathetic and disinterested?

When I came to Rothesay two years ago, I was then, if possible, a trifle more enthusiastic than now. However, when certain figures for the years 1925-29 (Table No. 1)

TABLE No. 1.

	Gas Manufactured.	*Output Accounted For.*	
	C.Ft.	C.Ft.	C.Ft.
1925–26	146,142,000	129,605,000	
*1926–27	151,555,000	134,126,000, increase	4,521,000
1927–28	138,782,000	123,516,000, decrease	10,610,000
1928–29	132,246,000	120,872,000, ,,	2,644,000

* Coal strike year.

were presented to me showing a steady annual decrease in output, except for the coal strike year, I began to wonder how far enthusiasm alone could carry me.

It was evident from these figures that the Distribution Department required first aid and that right speedily.

GENERAL SURVEY.

Subsequent investigation of my supply area brought to light regrettable faults which were contributing much to the Department's retrocession, chief among which were:

1. Inadequate pressure on sections of the district adjacent to the works at peak load periods.
2. Large number of small service pipes.
3. Houses within a few yards of a gas main using paraffin oil as a fuel.
4. Reluctance of dissatisfied consumers to report complaints.

In the light of these revelations a certain ironic significance is found in the poster displayed by the British Commercial Gas Association, "Gas," "The Fuel of The Present," "The Fuel of The Future."

They postulate in this final statement a probability in such a convincing manner that we begin to feel with them, but which without the hardest of hard work may never reach fruition. On the other hand, they avoid, or seem to avoid, the possibility that gas in some districts may have been the fuel of the past. A discouraging contingency unpleasant to contemplate. Accordingly, to those who are fortunate enough to be monopolists I would say, "Be Prepared," to the poor remnant I extend my sympathy for many things, the designation of which I leave to themselves.

INSPECTION OF MAINS AND SERVICES.

Faced with a rapidly falling output a quick road to improvement was essential; in this, fortune favoured me when it was announced that the Roads Department of the Burgh had arranged a comprehensive scheme of main road repairs in the heart of the town. This opportunity was grasped and arrangements made to expose for inspection all main and service pipes in these thoroughfares.

As the work of opening up progressed it was found that the 15-in. trunk main from the works fed two 7-in. mains in the heart of the town, and had not been tapped for sections of the district near the works. These sections were being supplied by a 5-in. branch from one of the 7-in. mains already mentioned. This 5-in. main was found to be supplying five 3-in. and one 6-in. branches, hence the fall in pressure. To simplify matters the affected area was split into three small sections, and to level up the pressure two were connected to the 15-in. trunk main by means of 6-in. underpressure connections, the third being supplied by the old 5-in. main. The advantage gained in making these connections can be appreciated by referring to the pressure records.

Many 1-in. cast-iron service pipes still in use were replaced by malleable-iron services of adequate size. When disconnecting the saddles from these services it was discovered, in many instances, that gas was being supplied through a chisel hole which had merely pierced the main. As a result of this discovery much extra work was entailed, owing to every service requiring to be disconnected to determine if the main had been bored or otherwise. However, it paid to take this trouble as an amazing number of 1½-in. service pipes supplied by an irregular chisel hole of approximately ½-in. cross-section was discovered.

Another surprise was the number of properties fitted with 1½-in. malleable-iron pipes fed from 1-in. cast-iron services, the connection for which had been faked with a collar. Opportunity was also taken to caulk all drawn or slightly drawn joints on the mains.

NEW CONSUMERS.

The erection of new housing has been practically at a standstill in Rothesay for a number of years, and consequently additional consumption cannot be looked for from this source.

The possibility, too, of increasing the consumption per consumer is not encouraging, due to the disfavour into which gas has fallen. It was and may even now be a common thing to hear gas spoken of in a disparaging manner. Not very flattering certainly, but true!

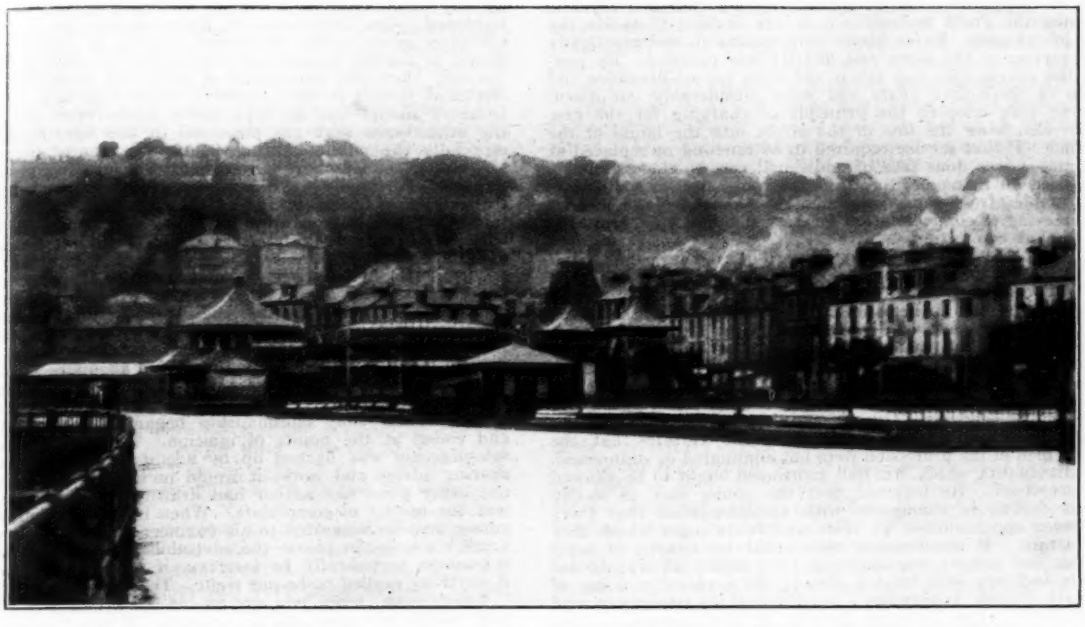
However, new consumption was obtained from fitting houses for gas where paraffin oil had been used. When the idea of a gas supply was voiced the respective proprietors were not willing to bear part of the cost, but they did not object to a supply being laid on their premises. After some judicious canvassing the tenants agreed to bear the cost of the internal work provided the Gas Department laid on the supply to the meter.

	£	s.	d.
Average expenditure per house (20 houses), including material, re-instating work, &c.	1	15	0
Average revenue per house for gas sold (9 months, all slot consumers)	2	16	9

ANOTHER PROFITABLE AND OSTENSIBLE SOURCE OF OUTPUT.

A number of houses on the island contained old type coal installations which were far from satisfactory. In order, therefore, to bring an alternative and more hygienic heating apparatus to these prospective power users, extensive advertising of lustre finished gas fires complete with backs, hearths, and kerbs was entered upon.

A scheme of supplying and fitting the complete installation proved popular owing to it being cheaper and less trouble than tiling; it eliminated building work and gave



PHOTOGRAPH SHOWING SMOKE FROM CHIMNEYS OF A SECTION OF VICTORIA STREET, ROTHESAY, ON A SUMMER MORNING.

the consumer a modern and hygienic grate of refined and pleasing appearance.

Thirty-four of these installations have been sold during the past winter, and it seems to me from these figures that there is justification for my plea that manufacturers might advantageously devise something which would give a wider range of design and finish.

Complaints.

What do they mean? Dissatisfied consumers—and like many diseases they are infectious. A few disgruntled consumers can soon turn a whole district into turmoil, and then if the electrician gets busy "we pay." To deal with complaints which come through these well-known circuitous channels is one of my pet hobbies, and it is amazing how quickly people appreciate the services rendered. To rope in the laggards and leave no avenue for escape, meter inspectors on making their surveys were instructed to treat all complaints sympathetically. Special notices were printed on our account forms inviting dissatisfied consumers to communicate with me direct, and in a Local Press campaign care was taken to impress the public that "we were at their service."

Fitting of Appliances.

Improperly fitted appliances led to much dissatisfaction, it being quite common to find cookers and fires supplied from $\frac{3}{8}$-in. or even $\frac{1}{4}$-in. diameter meter connections. To eliminate any possibility of apparatus or "the gas" being condemned through work of this class, a new service pipe is now laid to meters if necessary, free of charge. This might appear to be unwarranted generosity, but I am of the opinion that it is our duty and in our future interest to ensure that entire satisfaction is being obtained from every gas appliance which we hire or sell.

Progress Made.

You will understand with what feelings I have examined my output figures for signs of some improvement. The remedying of sources of unaccounted-for gas made it extremely difficult for me to arrive at a definite conclusion. However, on May 15th last I was greatly encouraged to learn that the year's sales were up 1·1 p.ct. (see Table No. 2)—not much, certainly, but the tide had turned, and I am pleased to record a 3·7 p.ct. increase in output for the first quarter of the new financial year.

Table No. 2.

	Gas Manufactured.	*Output Accounted For.*	
	C.Ft.	C.Ft.	C.Ft.
1929–30	127,162,000	118,071,000, decrease	2,801,000
1930–31	128,339,000	119,390,000, increase	1,319,000

Do not for one minute imagine that these increases are attributed solely to the few alterations already described, but rather would I ascribe them to these changes combined with steady gas quality and pressure; introduction of hire purchase; attention to showroom sales; advertising; demonstration of appliances; attention to the smallest inquiries; and staff co-operation.

The Future.

Much ink has been spilled on the subject of smoke abatement, and the best brains of the country have pointed out the advantages of a smokeless atmosphere. Interest in this subject and the possible future of gas in Bute led me to collect the following statistics relating to the four principal fuels used on the island.

		B.Th.U.	
Coal consumed	= 145,600 millions	(14,000 B.Th.U. per lb. taken)	
Coke consumed	= 58,240 ,,	(13,000 ,, ,, ,,)	
Gas consumed	= 50,740 ,,	(425 ,, ,, c.ft.)	
Electricity consumed	= 2,291 ,,	(3,420 ,, ,, unit taken)	

Coal has a huge lead over the smokeless fuels. What a tragedy for a holiday resort; but, what an opportunity.

The significance of the B.C.G.A. slogan "Gas, The Fuel of The Future," is now apparent. Development lies in the reduction of the smoke pall by the increased use of gas. This cannot be accomplished without keeping in close touch with our consumers, replacing obsolete appliances, and canvassing for future business. With this in view and to stimulate interest, two important steps have been taken which will benefit the consumer and the Department in the future. First, it is proposed to run an additional showroom in the front of the town during the six winter months, principally for the purpose of giving specialized displays and demonstrations. Secondly, throughout this summer a complete house to house survey has been made to collate data relating to the condition of apparatus, meters, and service pipes. The importance of this information is too obvious to require further comment.

In closing, although gas in Rothesay has come through a trying period since the inception of electricity five years ago, I feel very optimistic regarding the future. Gas has served the public in this town for 91 years, and I am confident that this old servant will prove to be a powerful and virile force in the future provided we act up to the motto, "Service with Efficiency."

Discussion.

Mr. T. W. Harper (Ayr) thought Mr. Lockhart took the right course in overhauling the service pipes when the opportunity presented itself. The substitution of obsolete services by malleable iron pipes of adequate size had been fully justified by the results. Rothesay, like many more seaside places, was stagnant as regards development of winter population, but a good deal of the native conservatism could be broken down by the introduction of apparatus of the very best type. If the results were demonstrated to consumers, the latter would not be slow to act.

Mr. David Vass (Perth) complimented Mr. Lockhart on the action he took in regard to the service pipes. In Perth they followed a similar line about five years ago, when a question was raised about providing work for the unemployed. Application was promptly made for a grant with a view to renewing the service pipes of the gas supply. He might explain that, prior to the question of a grant arising, he had worked out a scheme

which he calculated would be spread over a period of five years, but when the grant materialized it was decided to tackle the whole job at once. Extra fitters were employed, and practically every service in the town and district was renewed. By pursuing the course they had taken, the costs for maintenance and upkeep in succeeding years had been considerably cut down. In Perth they adopted the principle of charging for the first service—*i.e.*, from the line of the street into the house of the consumer. If that service required to be renewed or replaced at any time, it was done free of additional cost to the consumer. He advised all managers to get at the root cause of complaints and grumbles from consumers; and he thought Mr. Lockhart was deserving of commendation for having taken up a firm attitude in that connection.

Mr. A. C. Hovey (London) said that he had been much impressed by the standard of the contributions which had been read by two of the younger members of the Association. In the first paper [by Mr. Aitken] the idea of amalgamation had been shown to be of very distinct advantage to the communities served, while it had incidentally helped the Gas Industry by increasing its prestige. He thought there would be no objection to co-ordination and co-operation. Both elements were present in Leven and Buckhaven, and as a result the undertaking was able to make headway. One thing in amalgamations must be carefully watched, and that was to make certain that the younger men of the profession were not eliminated or suppressed. The individuality which Mr. Bell mentioned ought to be allowed to assert itself. He believed that the young men of to-day had the feeling in connection with amalgamations that there were fewer opportunities for them and fewer posts which they could attain. If these young men could be assured of some standing and proper remuneration they would all live to see the Gas Industry still forging ahead. At a recent meeting of the North British Association a most refreshing paper was read on "P.T.M." (Pay Through Meter). It just occurred to him that if the individual who read that bright piece of literature had been absorbed by a larger concern he could never have had the opportunities for studying the subject in the way he did.

Mr. J. Herbert Canning, O.B.E., President of the Institution of Gas Engineers, thought that, in approaching the subject of amalgamations, one should keep in view the point that a fusion of interests was going to produce something more in the way of financial result than the continuance of an isolated works. He did not think the matter had always been looked at from that angle. He agreed with Mr. Bell that, if amalgamation was decided upon, it ought to be done not in the interests of individual financiers, but in the interests of consumers and the Gas Industry. Infinite damage might be done to the Industry by any amalgamation where an undertaking was left heavily burdened. Gas lost ground if the price was not reduced and efficiency given to the consumers. Again, he felt it would be wrong to suggest compulsory amalgamation under Government control; they had experience of what had happened to their electrical friends in that respect. Those who were in the Gas Industry should lose no opportunity whatever of pointing out the advantages that gas possessed in the lighting field, and especially the public lighting field. The figures furnished by Mr. Gracie, of Edinburgh, were most encouraging in that connection. Personally he did not want to say anything about their electrical friends or against their lighting, but he did maintain that gas was capable of doing the work at least as efficiently. Indeed, he felt they could truthfully claim that it did the work even better. There was no reason at all for substituting gas by electricity simply because it happened to be the fashion of the moment. He agreed with Mr. Lockhart that it was little use introducing salesmen into the business unless they had good gas to sell. Until they made sure that they were going to supply gas of a constant and sufficient calorific value, and were in a position to provide adequate quantities to the consumers, they would never succeed in any district in selling the commodity as they ought to do. They could see clearly to-day that salesmanship began in the retort houses and ended at the points of ignition. In other words, unless salesmanship was backed up by adequate and technical engineering advice and work, it would inevitably fail. There was one other point the author had drawn attention to, and that was the matter of complaints. When he (Mr. Canning) was a young man he suggested to his engineer—a gentleman who was much his senior in years—the advisability of going round to the consumers periodically to ascertain if anything was wrong or if anything needed to be put right. The reply he got was this: "Young man, when you are as old as I am, you will learn that complaints come quickly enough. If you are fool enough to go looking around for them, you will have a very troublesome life." Frankly he (the speaker) had not seen any reason to alter his original opinion. People nowadays did not trouble to complain. They simply put in some alternative method of heating, lighting, or cooking. Systematic visitation of the districts made for the cultivation of friendship between the consumers and the inspector. In that way a relationship was established which would be all to the good of the Gas Industry when the electrical canvasser appeared on the scene.

Mr. Lockhart remarked that there was little, if anything, in the discussion to which he needed to reply. He was pleased, however, that his contribution had aroused so much interest and attention.

Institution of Gas Engineers

Dr. R. Lessing's Written Reply to the discussion on his Paper "Clean Coal in the Gas Industry".

In my spoken reply to the discussion I undertook to answer in writing the remaining questions not dealt with. Although several of the speakers and later contributors have effectively disposed of what little criticism was advanced, I welcome the opportunity to clear up some of the points raised.

In answer to the President's first question, the specific gravity of the calcium chloride solution employed in gravity separation is normally 1·4. By more recent improvements it has been made possible to float the middle product portions of coal of specific gravities above that figure in the solution of density 1·4, by the application of a gentle current. The velocity of this current is only a fraction of that used in water washing, and does not interfere with the sharp cut of separation of the clean coal proper.

The moisture contents of the various grades of coke from the Tottenham test were as follows:

—	Coke from Uncleaned Coal.	Coke from Clean Coal.
	Moisture.	Moisture.
	Per Cent.	Per Cent.
Grade I.— On 2 in.	0·97	0·97
Grade II.— Through 2 in. On 1½ in.	1·34	0·68
Grade III.— Through 1½ in. On ½ in.	1·88	0·72
Breeze— Through ½ in.	1·64	3·89
Total coke	1·35	1·09

I do not attach any importance to the small differences; however, as the conditions of quenching were identical in both cases, the reduction in the moisture content of the nut sizes may be significant and may indicate a lower absorptive capacity, in the sense that the absence of dust causes the water to run off and to be taken up by the breeze.

My contention that coke as a "smokeless" fuel would make a more ready appeal to the householder if it were also ashless (or nearly so) is supported by Mr. Arnold Marsh, the General Secretary of the National Smoke Abatement Society, in a paper read before the Institute of Fuel on April 15, 1931, where he states that "there is no doubt that many people using carbonized fuels for the first time have been permanently prejudiced against them because of what they have considered to be an excessive quantity of ash."

The President's question regarding the calorific value of the natural dust extracted from the raw coal may be answered by the following results from tests on various coals:

Coal.	Size.	Ash in Dust.	Calorific Value of Dust.
		Per Cent.	B.Th.U. per Lb.
Durham coking	⅜ in.-0	15·0	12,430
Welsh ,,	½ ,, -0	11·7	13,280
Yorkshire ,,	1 ,, -0	10·1	13,250
Durham steam	½ ,, -0	14·1	12,510
,, ,,	1 ,, -0	12·4	13,040
Northumberland steam	1 ,, -0	22·7	9,530
Anthracite duff	⅛ ,, -0	12·9	12,850
Average		14·1	12,410

I fully share the President's regret that the retorts could not be isolated and the C.W.G. work could not be carried out with blue water gas. In both cases the problem was to operate according to works routine rather than under test conditions. This is the reason why the C.W.G. results with either coke may not have come up to the best possible modern standard quoted by Dr. E. W. Smith; nevertheless, they had the advantage of being strictly comparative.

I cannot refrain from referring again to the low ash figures quoted by the President for the coke made at his works at Hull, particularly as he confirms that they apply to the total coke made and not to coke sold, from which the high-ash breeze would be excluded. Although his ash figures are not quite as low as those obtained by Mr. Law,

they are remarkable in view of the magnitude of the Hull Undertaking, and certainly well below the present average.

The practical experience of Mr. Law on the question of prices obtainable for coke of a quality such as I contemplate as normal in the future should dispose of all speculation and apprehension as to the economic possibilities. Mr. C. M. Gill's information on a phase in American practice furnishes certainly similar confirmation. But the intangible advantages, emphasized by Mr. Sensicle, are really those which, in my view, will furnish the decisive factor.

Some of these, not specifically mentioned in the paper, have been brought out by Mr. W. R. Damon, who calls attention to the low chloride content of clean coal in connection with the prevalent corrosion of tar stills due to hydrochloric acid, and by Mr. W. Green who refers to the importance of sulphur elimination at the source in its relation to sulphur in coke, gas, ammonia liquor, and benzole.

Mr. H. C. Smith considers the cleaning cost of 5d. as too low and the value of 10s. for dust as too high. I can state most emphatically that these figures have been arrived at on the basis of carefully calculated data; but, even if, for argument's sake, we were to assume double the cost of cleaning and half the price for dust, the cost of clean coal would only be raised by 12s. 5d. −11s. 7·7d. = 9·3d. This would still leave a credit balance of 1s. 5d. in favour of clean coal.

Dr. Sinnatt called attention to the steadily increasing quantity of coal which according to the Reports of the Mines Department is being treated by various cleaning processes. These statistics are very important as far as they go and as showing the prevailing tendency. However, they fall short in one respect, for they do not give any indication of the cleaning results obtained. If they did it would become apparent that only a very small fraction of the 71 million tons mentioned approaches the standard of 3 per cent. to 4 per cent. of ash, shown to be attainable by Dr. Sinnatt's work on the National Coal Survey.

Mr. Shapley's contribution to the discussion is most encouraging, and his general statement hardly requires comment, except for some minor points.

I fully agree with him that the haphazard mixing of coke breeze with the coal cannot be countenanced. "Breeze" from clean coal, however, is different in composition, and its freedom from dust and shale particles permits it to be blended with much more satisfactory effect.

The "ash in refuse" does not give a direct indication of the combustible matter, and certainly not of its gas-making value. The difference from 100 per cent. comprises the constitutional water in shale, sulphur in pyrites, and some volatile matter of indifferent value. In the examples quoted in the paper no account was taken of middle product. When this is separated from the refuse, the latter contains from 65-75 per cent. of ash.

The remarkable reduction in clinkering time in the C.W.G. tests is due not only to the smaller amount of ash, but in a very large measure to the uniformity of the residual ash left in the clean coal. It should be remembered that the real difficulty in clinker formation lies in the combination of refractory shale (fireclay) with the fluxes and the consequent production of sintered aggregates of a very tough nature and irregular structure. The ashes from the individual coal components, however, are on account of their uniformity much more tractable and manageable.

It is for that reason that a coke containing 3 per cent. of ash only is so very different in its behaviour on a grate from a coke normally regarded as of good quality and containing (say) 7 per cent. of ash. The ash of the 3 per cent. coke corresponds to the inherent coal ash of uniform composition, while that of the 7 per cent. coke comprises a mixture of inherent ash, shale, and pyrites, and is therefore liable to form undesirable clinker.

It might be as well to refer to one point not mentioned in the paper or discussion—namely, the influence of high quality coke on the export market. A coke such as that obtained in the tests described will find a ready sale in times of depression in preference to the ordinary product.

I cannot conclude this further reply without expressing my thanks for the great interest taken in the subject-matter of my paper and the most instructive criticism which the many contributors to the discussion had to offer.

B.C.G.A. District Conference at Rhyl

A North Wales District Conference of the British Commercial Gas Association was held in Rhyl Town Hall on Wednesday, Sept. 23, 1931, under the Presidency of Councillor T. J. Edwards, Chairman of the Rhyl Council Gas Committee, supported by Sir Francis Goodenough, C.B.E., Chairman of the B.C.G.A., and others.

At the outset of the morning session addresses of welcome were delivered by Councillor Albert Barnes, Chairman of the Rhyl Council, and Councillor T. J. Edwards.

Mr. Barnes said it gave him intense satisfaction to welcome such a very important conference to Rhyl, which was now in a very flourishing position in the matter of its gas undertaking. During the past twelve months it had taken a mighty jump forward, and had replaced a rather antiquated system of gas production with a thoroughly modern vertical retort system, by means of which the Engineer was now producing an ample supply of gas for all requirements.

Mr. T. J. EDWARDS then assumed the presidency of the conference and delivered an Address.

I believe, said Mr. Edwards, that the Gas Industry is a great national asset. It has already had a brilliant career, and its future is still more brilliant. In all trades competition seems to become keener every day. Competition, however, makes for efficiency, and I venture to say that in the last decade more real progress has been made in the efficiency of gas manufacture and sales than in any previous comparative period. New fields for the use of gas have been found, and the existing fields strengthened, so much so that, instead of being a dying industry, as our competitors would no doubt like it to be, the sale of gas in the British Isles during the last ten years has actually increased by about 30 p.ct., or a total volume of 70,000 million c.ft.

Considering the Industry in North Wales, I think we should be proud of the progress we are making in face of severe competition. The electricity supply in this area is controlled by a company as the main producer, manufacturing from water power. In the early days of electrical development we were told that the cheapest electricity was in those countries possessing water power, and if that be true in the case with which we are most concerned, then we have every reason to congratulate ourselves. I do not mean that all we need do is to sit in the office and wait for the business to come to us. We must be after it with all possible speed. Salesmanship is a fine art these days, and it is our duty to tell the consumer what a good thing we have to offer.

I think Rhyl can claim to be selling a cheap gas, and it is some satisfaction to me to know that our present selling price of 3s. 9d. per 1000 c.ft., or 10d. per therm, is almost down to the pre-war price, with cost of labour and materials practically 100 p.ct. greater. The majority of North Wales undertakings are in a somewhat different position from undertakings in industrial areas. In our own case we have practically no industry, and therefore the whole of our output is domestic. Also a number of the undertakings are holiday resorts, and again in our own case our maximum demand is in the summer season, the consumption for the month of August being 70 p.ct. greater than the minimum month, which is May. This is a factor which tells on our manufacturing costs. We are endeavouring to increase our load, and if this can be done, it is obvious that our manufacturing costs will decrease and bring about a reduction in the selling price of gas.

I would like to emphasize the necessity of telling the consumer of the uses to which gas can be put. First, I believe it is necessary for any undertaking desiring to make a success of the business to have a showroom, in which the latest and best gas appliances can be shown to advantage. I say best, because in my opinion there are cheap types of appliances on the market which are not constructed to give the consumer good service, and less still to the advantage of the gas undertaking. A showroom is one of the best means of keeping and increasing your consumption, and in this respect I have the advantage of knowing what has been done in the undertaking of which I am Chairman. Our showroom, opened in 1928, is not by any means elaborate, but we claim that it shows the consumer the best appliances that can be obtained. In 1927 the total value of cooker sales, &c., was about £2000; the following year, 1928, the value of the sales had increased 50 p.ct. to £3000,

while in 1930 the total was £3400, and this year there is every hope that this figure will be exceeded.

In conclusion let me congratulate the Gas Industry on its very efficient official sales department, the British Commercial Gas Association. It is continually devising new methods for popularizing gas, and thinking of new ideas, and with Sir Francis Goodenough as its Chairman we are assured that no stone will be left unturned that will make for the continued and increased prosperity of the Industry.

Sales and Service Policy.

Sir Francis Goodenough having delivered his Address on "Sales and Service Policy," the following paper was read:

SERVICE AND SALES ON SMALL WORKS

By H. B. Kendrick, Engineer and Manager, Conway Gas Department.

In approaching the subject of "Service and Sales" it is necessary to take into consideration the change in outlook of the modern engineer. He is no longer content to deal solely with the engineering and chemical matters which arise on his works. Owing to very severe competition he must be a salesman. If this is realized he will naturally strive to spend a considerable portion of his time on the district meeting consumers, interviewing prospective consumers, and generally endeavouring to create a feeling of confidence in gas. By such interviews he will get an intimate knowledge of his consumers' difficulties and tastes, which is the first step in giving good service.

It follows that if the Engineer of a small undertaking is to have sufficient liberty for work in the district he must have plant of such a type that the minimum of time may be allotted to the works itself. This brings me to my first point—that good service begins with the manufacturers of gas-works plant. It would be of great assistance if manufacturers would keep the question of ease of control very much to the fore when designing plant. All parts should be easily accessible, and gauges, recorders, &c., should be grouped on one panel—not distributed all over the plant as is usually the case. As no plant will give satisfactory results unless under constant skilled attention, much depends on the manufacturers if the engineer, who is probably the only technical man on the works, is going to spend most of his time supervising his works, or whether he will be free to pursue other duties and at the same time get the results expected.

Personnel.

The men themselves play a great part in good service, and this applies to the stokers as well as to the fitters. It is advisable to take the former into your confidence, explaining in a simple manner the necessity for maintaining as constant a quality as possible. When I arrived here 18 months ago the stokers controlled the quality by varying the amount of air admitted—a most pernicious system—but one which seems to be frequently used on small works.

Most naturally depends on the fitter. He is in daily contact with the consumers, and by his manner and skill, or lack of same, may do much to increase or mar confidence in the product we have to sell. The gasfitter's work to-day is most exacting. He not only requires a skilled working knowledge of every type of apparatus in use, but should also have some insight into the theory of combustion. Many concerns—I am thinking principally of the smaller ones—would be doing a great service to their consumers if their fitters had a few weeks' training by the manufacturers of appliances, who, I am sure, would be only too pleased to co-operate.

A man will naturally have a greater interest in his work if some remuneration other than his weekly wage is possible. We are considering giving each man a bonus for every order for apparatus. I feel confident that both the consumer and ourselves will benefit as well as the man who has effected the sale.

House Services.

The importance of adequate service pipes cannot be too greatly stressed. The state of affairs in this Borough was deplorable, and it is impossible to estimate the havoc which has been wrought by this fault. Practically the whole of the lighting has gone (including all public lighting), and consumers were put to immense trouble when trying to cook. To quote extreme cases, in one instance 36 houses were supplied off a 1-in. diameter pipe, and in another a 1-in. pipe had been run 270 yards to a club house where two cookers and several lights were in use. Two and three houses coupled to one ¾-in. service, and terraces of houses up to twelve in number fed off a 1-in. diameter pipe, was common practice. Such a state of affairs has naturally destroyed all faith in gas, which fortunately is gradually being restored as matters are righted. To cope with present-day requirements we put each consumer on an independent 1-in. service pipe. It has been most encouraging to note the changed attitude of former disgruntled consumers after enlargement of services has taken place.

Meters.

Consumers' meters present a big problem to the engineer of the small works. As most meters have to cope with the combined cooker and wash-boiler load at least one day per week for short periods, it is essential that they should throw as little back-pressure as possible and also register accurately when working at a reasonable amount over their badged capacity. The small works cannot afford meter testing plant, and, even if they could, would probably have difficulty in finding one of their men capable of carrying out such tests with any degree of accuracy. I should like to see independent tests made of various meters and the results placed at our disposal showing the back-pressure at full load and 25 p.ct. overload, and the percentage fast or slow when overloaded. As the price of meters is fixed, we should be in a position to buy on performance. Furthermore, correct registration ensures a satisfied consumer.

Showrooms and Advertising.

Showrooms are essential if business is to be done and the prospective buyer is to see apparatus in comfort and at its best. The best results will naturally be obtained if the showroom is situated in the shopping centre, but this means a whole-time showroom attendant, whose time would not be fully occupied, and whose wages, coupled with rent and rates, may be too heavy a burden for a small undertaking. Our own arrangements, although not ideal, overcome this difficulty. We rent one window, and the space behind it, of a double-fronted shop. The shopkeeper conducts all our sales, and in addition to a fixed rent we pay him 2½ p.ct. on the net price of the goods sold, and also light our own portion of the showroom.

We advertise periodically by sending circular letters to our consumers. These are produced on a copying machine and delivered by the meter boys, so cost us little more than the paper. We have also issued a small printed booklet on the use of gas for both domestic and industrial purposes. It seems impossible to advertise too much, as it is really astonishing how few people realize what gas can do.

Canvassing is by far the best way of reaching the consumer, though care is necessary in the choice of a suitable man. We in North Wales are considering employing a canvasser on a co-operative basis, each undertaking having his services annually for a period in ratio to the size of the concern.

Referring again to our own activities we have made a big point of frequently circularizing and interviewing both architects and builders in this district, as we are anxious to induce them to install gas fire registers in bedrooms; but so far we have had little success, and I think the lead will have to be given by the Corporation when next they build houses.

Lecturing to Women's Institutes and similar bodies would also appear to offer opportunities of overcoming a deal of old-fashioned prejudice and of giving advice as to the best means of using gas apparatus.

In conjunction with the opening of the showroom, a hire-purchase scheme for all apparatus was adopted, and in the case of wash-boilers we remove the old coal-fired boiler completely. This is greatly appreciated, as more room in the wash house is available.

The results of our efforts for the year ended March 31, 1931, were as follows (the showroom being open for ten months of this period):

Cookers	370
Fires	37
Wash-boilers	44
Grillers and boiling burners	23
Water heaters	4

and complete kitchen equipment for a convalescent home where daily cooking for 110 persons takes place.

We have 2200 consumers and the price of gas is 1s. 4d. per therm.

Card System.

The card system for complaints, meters, appliances, and consumers' records is just as easy to apply to a small undertaking as to the larger concerns providing the system adopted is not too complicated. As each card is issued from, and returned to, the office daily, we are certain that complaints are attended to expeditiously, and any observations made by the fitters are sure of being noted in the office. Furthermore an accurate check can be made of all

materials used. The consumers' records are of great help both in dealing with certain complaints and inquiries and for advertising purposes. We can tell at a glance where to forward any particular type of advertising matter.

If this great industry of ours is to progress—and personally I have every faith in it—I think it will only be accomplished by adopting tariffs. The use of gas fires, other than occasionally, is impossible at the present rates, although there are other objections to remove. How often one hears the cry that the gas fire does not look like a coal fire, although this objection might disappear if the price were right. Of the two principal systems, the tariff based on rateable values appears to offer more inducement to increase one's consumption than the block system, although I fail to see how the former can be applied to slot consumers without considerable complications.

This paper would hardly be complete without a word on maintenance. So far we have not started a free maintenance scheme, although it appears to be logical that confidence in gas would be greatly increased if we removed the causes of complaints before they matured. Most people are extraordinarily patient, and put up with poor supply, leaking taps, and other annoying ailments of gas without complaining until they can go on no longer. Our boast that "Gas never fails" is likely to be our undoing. If gas apparatus failed completely, as electrical apparatus does, immediate steps would be taken to put the matter right, and the apparatus would be restored to its full efficiency. The blocking of services, leaking of taps, clogging of nipples and burners, is a gradual process and is not generally reported until in an advanced state of development. How much better it would be if these cases were dealt with before the consumer had reached a point of exasperation. Real service would be rendered to the consumer, confidence would be maintained, and additional business would eventually result.

In conclusion I wish to apologize for the paucity of matter in this paper; but as I was approached only a month ago, the time for its preparation has been somewhat short. As my time here has mostly been spent in re-organizing the works, the sales side has not received the attention it will do in the future; and I hope at some further date to be able to give you data as to the results of the various schemes which my Council are considering at the moment.

Vote of Thanks.

Col. W. M. Carr (Stretford) proposed a vote of thanks to Sir Francis and Mr. Kendrick. Sir Francis was, he said, a great example and inspiration to all engaged in the Gas Industry. In paying tribute to Sir Francis' educational work, which he described as a foundation stone upon which a great edifice could be erected, he said there was nothing worse in the selling business than over-estimating the value of their goods. In connection with selling campaigns they in their respective departments must appreciate the situation, and they must not only know their own ability to afford supply and service, but must not under-estimate the strength of the opposition. They had to educate every member of their staffs from top to bottom, realizing that every man in the undertaking was of vital importance. Let them take a broad view instead of a parochial one, and go wholeheartedly for the publicity side of the business. It would pay all round to do much more for the smaller undertakings, for it should be borne in mind that the effect of bad gas service in the smaller towns was often reflected in the larger towns. Bad service in any line, he added, got a much greater reputation than good service. He hoped the day was not long distant when they would be contributing on a basis even for national publicity of something like 1 p.ct. of their turnover.

Mr. Burns (Liverpool) seconded the vote of thanks, and said they ought to congratulate themselves upon having a man of such organizing genius as Sir Francis in their midst. In quoting instances of faith in the Gas Industry among people outside it, he urged that it was up to them to do their utmost to see that that confidence was not misplaced.

Mr. Owen Evans (Wrexham) expressed his appreciation of the visit of Sir Francis to North Wales, and remarked what a fine thing it was for the smaller undertakings in North Wales to have at their service such an organization as the B.C.G.A. He also referred to the loss the Industry in North Wales had sustained by the recent death of Mr. James Smith, Gas Engineer at Colwyn Bay, who, he added, had had something to do with the arrangement of that conference.

Sir Francis Goodenough, in acknowledging the vote of thanks, said that what all of them had to keep in mind and act up to was that it was a case of planning through and working through, and not relying upon the old idea of muddling through.

Afternoon Session.

At the afternoon session, Councillor Edwards again presiding, a popular address entitled "Health and Happiness in the Home" was delivered by Mr. T. Bowen Partington, F.I.L., F.R.E.S., to which the general public were admitted.

Mr. Underwood (Wrexham), in proposing a vote of thanks to Mr. Partington, said that in health matters today they were suffering largely from what had been done years ago. To that was largely due the plight of many wretched people to-day. He thoroughly agreed that gas was by no means finished with, and had not yet been appreciated to anything like the extent it should be. In fact, those who talked so of putting the extinguisher on it would find it necessary to throw the extinguisher away. Mr. Underwood humorously reminded the ladies present that gas fires were now obtainable to match their hats or carpets, thereby proving as ornamental as they were useful. He emphasized the importance of gas consumption wherever possible in furthering the abatement and elimination of the great smoke nuisance.

Sir Francis Goodenough, in seconding the motion, emphasized that, in considering the cost of gas in the home, the housewife needed to take the whole budget of household expenditure into account, and not merely the gas bill. There was the value of what she saved in other ways to be reckoned with as well. In laying stress upon the hygienic importance and value of gas heating, Sir Francis remarked that the leading surgeons and physicians of London were among the strongest advocates of gas fires. The gas industry should be very proud of the fact that in the conduct of its service to the public it was truly serving the public health. As the use of gas had increased year by year the smoke pall over large towns and cities had decreased and the death rate had gone down. In fact, in many great cities, while the consumption of gas had been doubled, the death rate had been halved. Therefore let there be no abatement whatever of their interest and pride in an industry which made not only for convenience and comfort, but for health and happiness in the home and the city.

Speaking at the luncheon between the sessions, Sir Francis Goodenough said there was plenty of room in the field of public service for both gas and electricity. It was folly to think that either of these services to civilization would displace the other.

CONTINENTAL NOTES

NEW PROCESS FOR BENZOLE RECOVERY.

C. Wilke, reviewing recent developments in Germany in "Chimie et Industrie," 1931, 26, 479 (August), describes briefly a new process elaborated for benzole recovery by the Gesellschaft für Linde's Eismaschinen A.G. The process depends on refrigeration. The gas is lightly compressed and allowed to expand. A part of the energy required for the compression is recovered.

The method is specially suitable where recovery of benzole is the chief object. It enables the gas with its full content of naphthalene, and with only the tar and ammonia removed, to be treated. The yield of naphthalene and benzole, both of which are obtained in a relatively pure state, is very high.

At a nominal extra cost, complete dehydration of the gas may also be effected. The distillation curve of the recovered benzole is that of a normal motor benzole. The washing loss of the crude product is less than is the case with extraction by wash oil. From the crude benzole, a very pure benzene of superior quality can be obtained easily and cheaply by freezing, and at the same time a fraction rich in toluene is obtainable. In addition to the advantages of high yield and direct separation of benzole and naphthalene, the process has the further advantage of being to a large extent independent of the temperature of the atmosphere and of the cooling water.

However, the power costs are relatively high, and the working costs are therefore about the same as for an oil washing process. In certain cases—*e.g.*, in coke-oven plants—gas engines would be employed in spite of their high installation costs. The gas required by the engines would not exceed 4·5 p.ct. of the total gas treated. In gas-works, the motive power could be furnished by producer gas obtained from coke breeze.

GAS MARKETS & MANUFACTURES

Stock Market Report.

[For Stock and Share List, see later page.]

The Stock Exchange made a good re-opening on Wednesday of last week, the first day of business since the suspension of the gold standard. There was widespread buying of industrial shares and prices moved up rapidly, but British Funds and other fixed-interest-bearing securities were marked down on account of the depreciation in sterling. On Saturday business was conducted under the new regulation that dealings shall be for cash only. At the outset there was some confusion, but markets soon settled down to the altered conditions, and a better tendency developed generally, while British Funds closed firmer on a recovery in sterling.

A glance at the Stock and Share List will show to what extent gas debentures and preference stocks have been marked down in sympathy with other fixed-interest securities. Prices have taken on a wider margin, and it will be seen that in most cases 5 p.ct. denominations are now quoted at 90-100; 4½ p.cts., 85-90; 4 p.cts., 75-80; and 3 p.cts. at 55-60. South Metropolitan 6 p.ct. preference showed the heaviest fall with a drop of 9½ points to 105; while Gas Light 4 p.ct. preference fell 8 points to 72½.

On the other hand, ordinary stocks with very few exceptions remained unchanged. Two stocks which should directly gain under the present conditions are Imperial Continental and European. The former was very active, and at one time on Thursday changed hands at 388, the closing quotation showing an advance of 50 points on the week at 340-360. The latter stock was also freely dealt in, the price going to 117-127 on Friday though closing on Saturday at 112-122, with a net gain of 15 points compared with the previous week's closing price. The only fall of note was that of Bristol 5 p.ct., which dropped 4½ points to 90-93 at the local Exchange.

Current Sales of Gas Products.

The London Market for Tar and Tar Products.

LONDON, *Sept.* 28.

The present situation has led to a general firmness of prices, although no particular change has taken place in values at the moment.

Pitch is 55s. per ton f.o.b.

Creosote, for export, varies from 3¾d. to 5d. per gallon f.o.b., according to specification.

The prices of white spirits are as follows: Pure toluole, 1s. 11d. to 2s. per gallon; pure benzole, about 1s. 5d. per gallon; 95/160 solvent naphtha, about 1s. 5d. per gallon; and pyridine bases, 3s. to 3s. 3d. per gallon.

Tar Products in the Provinces.

Sept. 28.

The average prices of gas-works products during the week were: Gas-works tar, 20s. 6d. to 24s. 6d. Pitch—East Coast, 52s. 6d. to 53s. 6d. f.o.b. West Coast—Manchester, Liverpool, Clyde, 52s. 6d. to 53s. 6d. f.o.b.* Toluole, naked, North, 1s. 8d. to 1s. 8½d. Coal-tar crude naphtha, in bulk, North, 5d. to 5¼d. Solvent naphtha, naked, North, 1s. 3d. to 1s. 3½d. Heavy naphtha, North, 11d. to 11½d. Creosote, in bulk, North, liquid and salty, 3¼d. to 3½d.; low gravity, 1½d.; Scotland, 3½d. to 3¾d. Heavy oils, in bulk, North, 5d. to 5½d. Carbolic acid, 60's, 1s. 3½d. to 1s. 4½d. Naphthalene, £9 to £10. Salts, 50s. to 70s., bags included. Anthracene, "A" quality, 2½d. per minimum 40 p.ct., purely nominal; "B" quality, unsaleable.

* All prices for pitch are now quoted on the basis of f.o.b. In order to arrive at the f.a.s. value at any port it will be necessary to deduct the loading costs and the tolls whatever they may be.

Tar Products in Scotland.

GLASGOW, *Sept.* 26.

While inquiries have increased considerably during the week the volume of business remains somewhat disappointing. Refined coal tar is now difficult to obtain in quantity for prompt delivery.

Pitch.—Supplies are not too plentiful, and value remains firm at 45s. to 47s. 6d. per ton f.o.b. Glasgow for export, and about 40s. per ton f.o.r. works for home.

Refined tar prepared to Ministry of Transport Specification is extremely scarce for prompt, and value to-day is 2¾d. to 3d. per gallon *ex* works naked.

Creosote oil.—Production is well looked after and quotations are steady. B.E.S.A. specification is 2¾d. to 3d. per gallon; low gravity, 3¼d. to 3½d. per gallon; and neutral oil, 3¾d. to 3¾d. per gallon—all f.o.r. in bulk quantities.

Cresylic.—Market continues dull with quotations easy. Pale, 97-99 p.ct., 1s. 3d. to 1s. 4d. per gallon; dark, 97/99 p.ct., 1s. 2d. to 1s. 3d. per gallon; and pale, 99/100 p.ct., 1s. 5d. to 1s. 6d. per gallon—all f.o.r. naked.

Crude naphtha.—Supplies are not plentiful, and value is 4½d. to 5d. per gallon according to quality.

Solvent naphtha.—Conditions remain quiet. 90/160 is 1s. 1d. to 1s. 4d. per gallon, and 90/190, 1s. to 1s. 1d. per gallon.

Motor benzole.—Small parcels are changing hands at good prices, but value in bulk remains at 1s. 3d. to 1s. 4d. per gallon f.o.r.

Pyridines are in better call; 90/160 grade being 2s. 9d. to 3s. per gallon, and 90/140 grade 3s. to 3s. 3d. per gallon.

Benzole Prices.

These are considered to be the market prices for benzole at the present time:

	s.	d.		s.	d.	
Crude benzole	0	7	to	0	7½	per gallon at works
Motor ,,	1	2	,,	1	3	,, ,, ,,
Pure ,,	1	6	,,	1	7	,, ,, ,,

Trade Notes.

New Gasholder for Skipton.

Messrs. Newton, Chambers, & Co., Ltd., have just received an order from the Skipton Urban District Council (subject to the sanction of the Ministry of Health) for a mild steel high-pressure gasholder of 250,000 c.ft. capacity.

New Holder for Bristol.

The Bristol Gas Company recently placed an order with Messrs. Robert Dempster & Sons, Ltd., of Elland, for a steel tank and three-lift spiral-guided gasholder having a capacity of 1,500,000 c.ft., to be erected at the Bedminster Gasholder Station.

Contracts Advertised To-Day.

Engine and Pump and Meter Houses.

The Oldham Gas-Works Committee invite tenders in connection with above. [Advert. on p. 802.]

Meters.

The Dewsbury Corporation invite tenders for the supply of dry gas meters. [Advert. on p. 802.]

Pipes, Stores, &c.

The Dewsbury Corporation invite tenders for the supply of pipes and specials, stores, &c. [Advert. on p. 802.]

Parliamentary Intelligence

[From Our Special Correspondents.]

House of Lords.

Special Order.

A Special Order on the application of the Berkhampstead Gas Company has been laid before the House and referred to the Special Orders Committee.

House of Commons.

Private Bill.

The petition of the Gas Light and Coke Company against the London Electric, Metropolitan District, and Central London Railway Companies (Works) Bill has been withdrawn.

Special Order.

A Special Order on the application of the Berkhampstead Gas Company has been presented and ordered to lie upon the table of the House.

Hydrogenation of Tar Oils.

Mr. T. SMITH (Pontefract, Labour) asked the Lord President of the Council if he could make a statement with regard to the research schemes into the hydrogenation of tar oils and coal decided upon by the late Government.

Mr. BALDWIN: It has been decided to proceed with these schemes. Some modifications in the detailed arrangements have been determined upon, but these, while enabling some saving in capital costs to be made, will in no way alter the essential features of the scheme nor prejudice the value of the results it is hoped to obtain from the experiments.

STOCK AND SHARE LIST.

[For Stock Market Report, see earlier pages.]

Issue.	Share.	When ex-Dividend.	Dividends. Prev. Hf. Yr.	Dividends. Last Hf. Yr.	NAME.	Quotations. Sept. 26. (Provincial Exchanges Sept. 25.)	Rise or Fall on Week.	Transactions. Lowest and Highest Prices During the Week.
£			% p.a.	% p.a.				
1,551,868	Stk.	Apl. 9	7⅞	7⅞	Alliance & Dublin Ord. ...	102—107	...	103⅞—104¼
374,000	,,	July 9	4	4	Do. 4 p.c. Deb. ...	71—76	...	...
522,655	,,	Aug. 24	7	7	Barnet Ord. 7 p.c.	121—126	...	...
300,000	1	Apl. 23	1/4½	1/9⅜	Bombay, Ltd.	15/—17/6	...	...
174,500	10	Aug. 10	9	9	Bournemouth 5 p.c. ...	14⅜—15⅜	...	...
500,050	10	,,	7	7	Do. B 7 p.c. ...	12—13	—¼	...
439,160	10	,,	6	6	Do. Pref. 6 p.c. ...	10½—11½	—½	...
50,000	Stk.	June 25	3	3	Do. 3 p.c. Deb. ...	55—60	—4	...
162,025	,,	,,	4	4	Do. 4 p.c. Deb. ...	75—80	—4	...
357,900	,,	Aug. 24	7½	7½	Brighton & Hove 6 p.c. Con.	114—119	...	...
371,880	,,	,,	6¾	6¾	Do. 5 p.c. Con.	104—107	...	...
1,287,500	,,	July 23	5	5	Bristol 5 p.c. max.	90—93[a]	—4½	...
120,420	,,	June 25	4	4	Do. 1st 4 p.c. Deb. ...	78—80[a]	...	...
217,870	,,	,,	4	4	Do. 2nd 4 p.c. Deb. ...	78—80[a]	...	...
328,790	,,	,,	5	5	Do. 5 p.c. Deb.	98—99[a]	...	...
855,000	,,	Apl. 9	7	8	British Ord.	110—115	...	112—113
100,000	,,	June 25	7	7	Do. 7 p.c. Pref.	110—115	...	...
120,000	,,	,,	4	4	Do. 4 p.c. Red. Deb. ...	70—80	—3½	...
450,000	,,	,,	5	5	Do. 5 p.c. Red. Deb. ...	90—100	—3½	98
160,000	,,	June 25	5	5	Cambridge 5 p.c. Deb. ...	95—100	—2	...
100,000	10	May 21	6	8	Cape Town, Ltd.	9—10	...	...
100,000	10	May 7	4½	4½	Do. 4½ p.c. Pref. ...	6½—7½	...	...
150,000	Stk.	June 25	4½	4½	Do. 4½ p.c. Deb. ...	72—77	...	...
626,860	,,	July 23	6	6	Cardiff Con. Ord.	95—98	...	...
237,860	,,	June 25	—	2⅜	Do. 5 p.c. Red. Deb.	90—100	—5½	...
157,150	,,	Aug. 10	6½	5	Chester 5 p.c. Ord.	85—90[b]	...	...
98,936	1	May 7	†2/-	†2/-	Colombo, Ltd. Ord.	28/—33/-	...	...
24,500	1	,,	1/4½	1/4½	Do. 7 p.c. Pref.	17/6—19/6	...	...
609,204	1	Apl. 9	1/4½	15·27[d]	Colonial Gas Assn. Ltd. Ord.	10/—15/-	...	...
296,053	1	,,	1/7½	17·67[d]	Do. 8 p.c. Pref.	10/—15/-	...	...
2,073,280	Stk.	July 23	6	6	Commercial Ord.	92—95	...	93½—94
475,000	,,	June 11	3	3	Do. 3 p.c. Deb. ...	55—60	—1	...
787,560	,,	Aug. 10	7	7	Croydon sliding scale	107—110	...	108—109
453,100	,,	,,	5	5	Do. max. div.	81—84	...	81
542,270	,,	Aug. 24	10	7	Derby Con.	120—125[c]	...	...
55,000	,,	June 25	4	4	Do. Deb.	65—70[c]	...	...
209,000	,,	Sept. 7	5	5	East Hull Ord. 5 p.c. ...	70—73	...	...
1,002,180	,,	Sept. 21	†6½	†4	European, Ltd.	112—122*	+15	109—125
18,953,033	,,	July 23	5⅜	5⅜	Gas Light & Coke 4 p.c. Ord.	18/3—19/3[f]	...	18/4½—19/3
2,600,000	,,	,,	3½	3½	Do. 3½ p.c. max.	60—65	—4	62
4,294,691	,,	,,	4	4	Do. 4 p.c. Con. Pref. ...	70—75	—8	78¾—78¾
5,694,095	,,	June 11	3	3	Do. 3 p.c. Con. Deb. ...	55—60	—3	55½—61
3,642,770	,,	,,	5	5	Do. 5 p.c. Red. Deb. ...	90—100	—6½	95—102
2,500,000	,,	,,	—	—	Do. 4½ p.c. Red. Deb. ...	85—90	—5½	85—94
161,480	,,	Sept. 7	10	10	Harrogate Cons. 10 p.c. max.	153—158	...	...
82,500	,,	Aug. 24	7	7	Hastings & St. L. 5 p.c. Conv.	95—100	...	...
258,740	,,	,,	5½	5½	Do. 3½ p.c. Conv.	80—83	...	...
70,000	10	Oct. 9	‡	10	Hongkong & China, Ltd. ...	12½—13½	...	...
213,200	Stk.	Aug. 10	6	6	Hornsey Con. 3½ p.c. ...	89—92	...	...
2,800,000	,,	May 21	15	25	Imperial Continental Cap.	340—360	+50	325—388
223,130	,,	Aug. 10	3½	3½	Do. 3½ p.c. Red. Deb.	70—75	—6	77
235,242	,,	Aug. 10	8½	8½	Lea Bridge 5 p.c. Ord. ...	129—132	...	...
2,145,907	,,	Aug. 24	6	6	Liverpool 5 p.c. Ord. ...	95—95½[b]	...	...
306,083	,,	July 15	4	4	Do. 4 p.c. Deb. ...	79—81[b]	...	...
165,796	,,	Aug. 24	9	8	Maidstone 5 p.c. Cap. ...	127—132	...	...
63,480	,,	June 25	3	3	Do. 3 p.c. Deb. ...	55—60	—1	...
75,000	5	June 11	†10	†10	Malta & Mediterranean ...	6¾—7¼	...	...
392,000	—	Apl. 2	5½	5½	Metropolitan (of Melbourne) 5½ p.c. Red. Deb.	80—85	...	...
171,978	Stk.	Aug. 24	5	5	M. S. D. Utility "C." Cons.	76—81	...	...
522,992	,,	,,	4	4	Do. 4 p.c. Cons. Pref.	73—78	...	...
675,000	,,	May 21	†6	†6	Montevideo, Ltd.	80—90	...	...
2,061,315	,,	Aug. 10	5½	5	Newcastle & Gateshead Con.	15/9—16/9[d/]	—/1½	...
682,856	,,	,,	4	4	Do. 4 p.c. Pref. ...	74—75[d]	...	...
691,705	,,	June 25	3½	3½	Do. 3½ p.c. Deb. ...	69—71[d]	...	...
277,285	,,	May 7	5	5	Do. 5 p.c. Red. Deb.	98—100[d]	...	...
199,940	,,	Aug. 24	7½	7½	North Middlesex 6 p.c. Con.	112—117	...	...
396,160	,,	Aug. 10	5	5	Northampton 5 p.c. max. ...	74—79	...	...
300,000	,,	Apl. 23	9	7	Oriental, Ltd.	93—103	...	...
60,000	5	13 May, '15	—	—	Ottoman	0—½	...	...
205,162	Stk.	June 25	8	8	Plym'th & Stonehouse 5 p.c.	110—115	...	...
424,416	,,	Aug. 24	8	8	Portsm'th Con.Stk. 4 p.c.Std.	119—124	...	...
241,446	,,	,,	5	5	Do. 5 p.c. max. ...	76—79	...	...
686,312	,,	July 23	4	4	Primitiva 4 p.c. Rd. Db. 1911	83—86	...	...
389,813	,,	June 25	4	4	Do. 4 p.c. Cons. Deb.	84—87	...	...
150,000	10	Sept. 21	6	6	San Paulo 6 p.c. Pref. ...	7⅞—8*	—¼	...
1,736,968	Stk.	Sept. 7	6½	6	Sheffield Cons.	103—105[e]	...	...
95,000	,,	July 9	4	4	Do. 4 p.c. Deb.	79—81[e]	...	...
90,000	10	June 11	15	15	South African	3½—5½	...	...
6,709,895	Stk.	July 23	7½	5	South Met. Ord.	100—103	—1	100½—102½
1,135,812	,,	,,	6	6	Do. 6 p.c. Irred. Pf.	100—110	—9½	...
1,895,445	,,	July 9	3	3	Do. 3 p.c. Deb. ...	55—60	—3	60—61
1,000,000	,,	July 23	4	5	Do. 5 p.c. Red. Deb.	90—100	—6½	95—101½
91,500	,,	Aug. 10	8½	8½	South Shields Con.	110—112[d]	...	...
1,543,795	,,	Aug. 10	6½	6½	South Suburban Ord. 5 p.c.	101—104	...	...
668,837	,,	June 25	5	5	Do. 5 p.c. Deb.	90—100	—6½	...
647,740	,,	Aug. 24	5	5	Southampt'n Ord. 5 p.c. max.	76—79	...	...
121,275	,,	June 25	4	4	Do. 4 p.c. Deb.	70—80	—3½	...
250,000	,,	Aug. 24	7	7	Swansea 7 p.c. Red. Pref. ...	95—98	...	...
200,000	,,	June 25	6½	6½	Do. 6½ p.c. Red. Deb.	99—102	...	...
1,076,490	,,	Aug. 10	6⅝	6⅝	Tottenham and District Ord.	103—107	...	...
150,000	,,	,,	5½	5½	Do. 5½ p.c. Pref. ...	99—102	...	...
199,005	,,	June 11	4	4	Do. 4 p.c. Deb. ...	70—80	—4½	...
85,701	,,	Sept. 21	6	6	Tuscan, Ltd., 6 p.c. Red. Db.	72—77*	—2	...
310,694	,,	Aug. 24	7	7	Uxbridge, Maidenhead, & Wycombe 5 p.c.	100—105	...	101—102
88,380	,,	,,	5	5	Do. 5 p.c. Pref. ...	88—93	...	...
1,322,220	,,	July 9	7	7	Wandsworth and District: Consolidated	111—114	...	114
426,000	,,	,,	5	5	Do. 5 p.c. Pref.	90—100	—3½	91—99½
1,013,464	,,	June 25	5	5	Do. 5 p.c. Deb.	90—100	—6½	...

Quotations at:—*a.*—Bristol. *b.*—Liverpool. *c.*—Nottingham. *d.*—Newcastle. *e.*—Sheffield. *f.*—The quotation is per £1 of stock. * Ex. div. † Paid free of income-tax. ‡ For year. § Div. = 10 p.ct. p.a. less tax and less tax on interim dividend.

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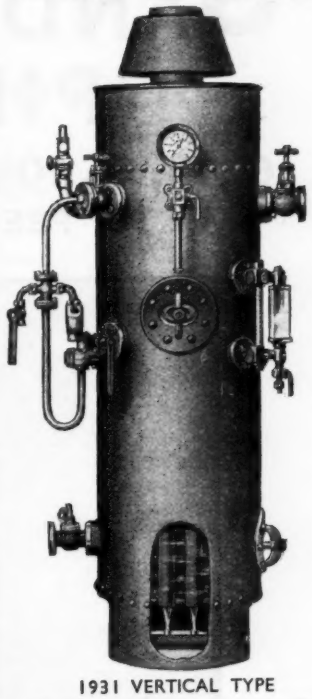

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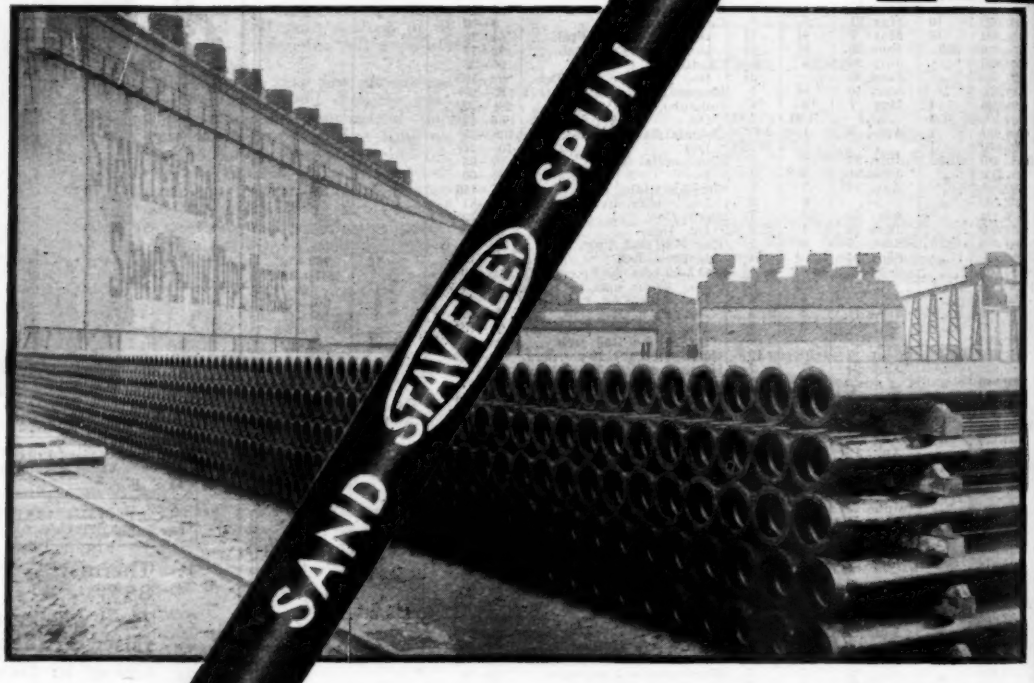

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